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| Title of Module: Bioanalysis | | | |
| Code: BIOL11001 | SCQF Level: 11 (Scottish Credit and Qualifications Framework) | Credit Points: 20 | ECTS: 10 (European Credit Transfer Scheme) |
| School: | School of Health and Life Sciences | | |
| Module Co-ordinator: | David Thompson | | |
| Summary of Module | | | |
| <p>This module provides experience of analytical techniques used to analyse biological molecules, and includes the analysis and presentation of a variety of different data.</p> <p>Topics covered will include:</p> <ul style="list-style-type: none"> (i) spectroscopic analysis uv/vis, ir, fluorescence (ii) chromatography hplc, gc-ms, lc-ms, affinity, size exclusion (iii) mass spectrometry (iv) immunological techniques ELISA (v) bioassays cytotoxicity testing, biosensors <p>Students will gain an understanding of the theory underpinning these topics as well as hands on practical experience. In addition, to reinforce the importance of working to quality standards, the techniques will be performed with an awareness of quality standards and the accuracy of the result obtained will be assessed.</p> <p>The module will be delivered by lectures and practical work. The practical work will be set in a wider context by the use of extended laboratory reports.</p> <p>This module is designed to create analytical, inquiring, knowledgeable graduates. They will be effective communicators, motivated and research-minded.</p> | | | |

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| Module Delivery Method | | | | | |
| Face-To-Face | Blended | Fully Online | HybridC | HybridO | Work-based Learning |
| | | | ✓ | | |
| <p>Face-To-Face Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.</p> <p>Blended A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered “blended” if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations</p> <p>Fully Online Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.</p> <p>HybridC Online with mandatory face-to-face learning on Campus</p> <p>HybridO Online with optional face-to-face learning on Campus</p> <p>Work-based Learning Learning activities where the main location for the learning experience is in the workplace.</p> | | | | | |

Campus(es) for Module Delivery

The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)

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| Paisley: | Ayr: | Dumfries: | Lanarkshire: | London: | Distance/Online Learning: | Other: |
| | | | ✓ | | | |

Term(s) for Module Delivery

(Provided viable student numbers permit).

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|--------|---|--------|--|--------|--|
| Term 1 | ✓ | Term 2 | | Term 3 | |
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Learning Outcomes: (maximum of 5 statements)

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

- L1. Demonstrate critical understanding of a range of analytical techniques.
- L2. Show proficiency in carrying out a range of analytical techniques and assays.
- L3. Demonstrate critical understanding of the ICH guidelines on method validation.

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 Level 11. A critical understanding of the principal theories, principles and concepts of a range of analytical techniques. | |
| Practice: Applied Knowledge and Understanding | SCQF Level 11. Use a range of skills techniques and practices associated with analysing biomolecules. | |
| Generic Cognitive skills | SCQF Level 11. Apply critical analysis, evaluation and synthesis to a range of analytical techniques. | |
| Communication, ICT and Numeracy Skills | SCQF Level 11. Undertake critical evaluation of a wide range of numerical and graphical data. | |
| Autonomy, Accountability and Working with others | SCQF Level 11. Take responsibility for own work and/or significant responsibility for work of others. | |
| Pre-requisites: | Before undertaking this module the student should have undertaken the following: | |
| | Module Code: | Module Title: |
| | Other: | |
| Co-requisites | Module Code: | Module Title: |

* Indicates that module descriptor is not published.

Learning and Teaching

The module will be delivered by means of lectures, practical laboratory sessions and tutorials. Students will be required to access lecture notes, links to reference sources and other support materials on VLE. This will provide students with core material which forms the basis of the syllabus and extensive supplementary material to broaden their reading within the subject.

Lectures will deliver fundamental information which will assist students in understanding key concepts relevant to various analytical techniques employed in the biotechnology industry. In addition, they will reinforce the key aspects of method validation and the importance of working to Standard Operating Procedures (SOPs) and quality standards. Laboratory sessions will allow the students to gain hands-on experience of a range of analytical techniques.

Assessment for the module will be based on an examination (50%) and extended laboratory reports (50%).

Learning Activities

During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:

Student Learning Hours

(Normally totalling 200 hours):

(Note: Learning hours include both contact hours and hours spent on other learning activities)

Lecture/Core Content Delivery

36

Laboratory/Practical Demonstration/Workshop

12

Independent Study

152

200 Hours Total

**Indicative Resources: (eg. Core text, journals, internet access)

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Principles and Practice of Bioanalysis, R F Venn (2008) CRC Press ISBN-10: 0849338573

A Handbook of Bioanalysis and Drug Metabolism, G. Evans (Ed) (2004) CRC Press ISBN-13: 9780-41527194

Additional material will be made available using the module VLE page

(**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)

Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time.

Please refer to the Academic Engagement Procedure at the following link: [Academic engagement procedure](#)

Where a module has Professional, Statutory or Regulatory Body requirements these will be listed here: Attendance at synchronous sessions (lectures, workshops, and tutorials), completion of asynchronous activities, and submission of assessments to meet the learning outcomes of the module

Supplemental Information

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|---------------------------------------|--------------------------------|
| Programme Board | Biological Sciences and Health |
| Assessment (Pass/Fail) Results | No |
| Subject Panel | Biology L7-11 |
| Moderator | Steven Kelly |
| External Examiner | A Tsaousis |
| Accreditation Details | |
| Changes/Version Number | 2.16 Minor updates |

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| Assessment: (also refer to Assessment Outcomes Grids below) |
| Assessment for the module will be based on a class test (50%) and |
| extended laboratory reports (50%) |
| (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. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.) |

Assessment Outcome Grids (Footnote A.)

| Component 1 | | | | | |
|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|--|---------------------------------|
| Assessment Type (Footnote B.) | Learning Outcome (1) | Learning Outcome (2) | Learning Outcome (3) | Weighting (%) of Assessment Element | Timetabled Contact Hours |
| Presentation | ✓ | | ✓ | 20 | 0 |
| Component 2 | | | | | |
| Assessment Type (Footnote B.) | Learning Outcome (1) | Learning Outcome (2) | Learning Outcome (3) | Weighting (%) of Assessment Element | Timetabled Contact Hours |
| Portfolio of practical work | | ✓ | | 80 | 0 |
| Combined Components | | | Total For All | 100% | 0 hours |

Footnotes

- A. Referred to within Assessment Section above
B. Identified in the Learning Outcome Section above

Note(s):

- More than one assessment method can be used to assess individual learning outcomes.
- Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note). This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

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. Please refer to the UWS Equality and Diversity Policy at the following link: [UWS Equality and Diversity Policy](#)

[UWS Equality and Diversity Policy](#)

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