



MODULE SPECIFICATION

| Part 1: Information | | | |
|---------------------------|---|--------------------|------------------|
| Module Title | Core Chemistry | | |
| Module Code | USSKNE-15-1 | Level | 1 |
| For implementation from | September 2020 | | |
| UWE Credit Rating | 15 | ECTS Credit Rating | 7.5 |
| Faculty | Health and Applied Sciences | Field | Applied Sciences |
| Department | Applied Sciences | | |
| Contributes towards | FdSc Biological Laboratory Sciences, compulsory | | |
| Module type: | Standard | | |
| Pre-requisites | None | | |
| Excluded Combinations | None | | |
| Co- requisites | None | | |
| Module Entry requirements | None | | |

| Part 2: Description |
|---|
| <p><u>This module will cover the following topics within the area of chemical science:</u></p> <p>Structure and bonding: Why do atoms combine into complex molecules and materials, and how does this influence their chemical and physical properties? Chemical combinations - origins of ionic and covalent bonding related to atomic structure and the Periodic Table; electronegativity, polar bonds and intermolecular forces. Naming and structures of important organic and inorganic compounds.</p> <p>Chemical reactions: Nature and order of chemical reactions. Redox and acid-base reactions. Neutralisation and titration procedure. Introduction to stability of atoms, molecules and mixtures. Enthalpy of combustion. Factors influencing the rate of a chemical reaction. Experimental and mathematical methods for rates of reactions.</p> <p>Organic chemistry: Identifying organic functional groups and ring systems. Synthesis and reactivity of aromatic and non-aromatic ring systems. Fundamental stereochemistry in the context of drugs and biochemistry - structural isomers and stereoisomers. Common synthetic reactions in organic synthesis.</p> <p>This module aims to deliver specialist knowledge through taught lectures, seminars and practical sessions to promote application of knowledge acquired, analytical and problem-solving skills.</p> |

Independent learning includes hours engaged with essential reading, assignment preparation and completion.

| Generic Graduate Skill | <i>Specific strand (eg presentation) - Optional</i> | Introduced | Developed | Evidenced |
|---------------------------------------|---|-------------------------------------|--------------------------|-------------------------------------|
| 1. Communication | Written communication [A, B] | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Professionalism | Practical exam; practical sessions [B] | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Critical Thinking | Evaluation of experiments [B] | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Digital Fluency | Digital assignment [B] | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Innovative and Enterprising | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Forward Looking | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Emotional Intelligence | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Globally Engaged | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Part 3: Assessment: Strategy and Details




The assessment strategy has been designed to support and enhance the development of subject-based knowledge and practical skills, whilst ensuring that the learning outcomes are achieved.

The controlled component is comprised of a 2hour practical exam. This assessment will include demonstration of practical skills and application of problem-solving, evaluative and mathematical skills to perform a laboratory procedure.

The coursework is comprised of a workbook consisting of problem solving and data analysis tasks. This assessment will enable students to develop critical thinking and problem solving skills, as well as deepen understanding of chemistry.

Opportunities for formative feedback are built into teaching and practical sessions. Students are provided with formative feed-forward for their practical exam through laboratory sessions and seminars.

| Identify final timetabled piece of assessment (component and element) | Component A | |
|--|--|------------------------|
| % weighting between components A and B (Standard modules only) | A: 50 | B: 50 |
| First Sit | | |
| Component A (controlled conditions) Description of each element | Element weighting (as % of component) | |
| 1. Practical exam (2 hours) | 100 | |
| Component B Description of each element | Element weighting (as % of component) | |
| 1. Workbook | 100 | |
| Resit (further attendance at taught classes is not required) | | |

| Component A (controlled conditions) Description of each element | Element weighting (as % of component) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----------------------------------|-----------------------|---|----|----------------------------------|--|--------------------------------------|-----|------|--|--|--|--|--|----|-----------------------|---|-------------------------|-----------------------|-----------------|-----|----|-----|---|-----|--|--|--|--|---|
| 1. Practical Exam (2 hours) | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component B Description of each element | Element weighting (as % of component) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Workbook | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part 4: Learning Outcomes & KIS Data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Learning Outcomes | <p>On successful completion of this module students will be able to:</p> <ul style="list-style-type: none"> • Apply mathematical skills to the analysis of experimental data (A) • Apply practical techniques encountered in chemistry and analyse, evaluate and present data in a controlled environment (A) • Apply problem solving and critical thinking skills to theoretical tasks covering various chemistry topics (B) • Demonstrate understanding of various concepts encountered in chemistry (B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Key Information Sets Information (KIS) | <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5" style="background-color: #d3d3d3;">Key Information Set - Module data</th> </tr> <tr> <td colspan="5" style="text-align: center;"><i>Number of credits for this module</i></td> </tr> </thead> <tbody> <tr> <td colspan="4"></td> <td style="text-align: center; border: 2px solid black;">15</td> </tr> <tr> <th style="background-color: #d3d3d3;">Hours to be allocated</th> <th style="background-color: #d3d3d3;">Scheduled learning and teaching study hours</th> <th style="background-color: #d3d3d3;">Independent study hours</th> <th style="background-color: #d3d3d3;">Placement study hours</th> <th style="background-color: #d3d3d3;">Allocated Hours</th> </tr> <tr> <td style="text-align: center;">150</td> <td style="text-align: center;">45</td> <td style="text-align: center;">105</td> <td style="text-align: center;">0</td> <td style="text-align: center;">150</td> </tr> <tr> <td colspan="4"></td> <td style="text-align: center;"></td> </tr> </tbody> </table> | Key Information Set - Module data | | | | | <i>Number of credits for this module</i> | | | | | | | | | 15 | Hours to be allocated | Scheduled learning and teaching study hours | Independent study hours | Placement study hours | Allocated Hours | 150 | 45 | 105 | 0 | 150 | | | | |  |
| Key Information Set - Module data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Number of credits for this module</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hours to be allocated | Scheduled learning and teaching study hours | Independent study hours | Placement study hours | Allocated Hours | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 45 | 105 | 0 | 150 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contact Hours | <p>The table below indicates as a percentage the total assessment of the module which constitutes a;</p> <p>Written Exam: Unseen or open book written exam Coursework: Written assignment or essay, report, dissertation, portfolio, project or in class test Practical Exam: Oral Assessment and/or presentation, practical skills assessment, practical exam (i.e. an exam determining mastery of a technique)</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Assessment | <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="background-color: #d3d3d3;">Total assessment of the module:</th> </tr> </thead> <tbody> <tr> <td>Written exam assessment percentage</td> <td style="text-align: center;">0%</td> </tr> <tr> <td>Coursework assessment percentage</td> <td style="text-align: center;">50%</td> </tr> <tr> <td>Practical exam assessment percentage</td> <td style="text-align: center;">50%</td> </tr> <tr> <td colspan="2" style="text-align: center;">100%</td> </tr> </tbody> </table> | Total assessment of the module: | | Written exam assessment percentage | 0% | Coursework assessment percentage | 50% | Practical exam assessment percentage | 50% | 100% | | | | | | | | | | | | | | | | | | | | | |
| Total assessment of the module: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Written exam assessment percentage | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coursework assessment percentage | 50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Practical exam assessment percentage | 50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|--------------|--|
| Reading List | <p>The following book is recommended as it covers most of the module material at an appropriate level.</p> <ul style="list-style-type: none"> W.H. Freeman, Lewis, R. and Evans, W. (2011) <i>Chemistry</i>. 4th ed. Basingstoke: Palgrave Macmillan <p>Extensive notes will be provided via blackboard on the scientific topics. Links to useful and credible websites will also be provided.</p> <p>The students are also advised to consult the basic scientific texts in UCW, Frenchay and Glenside libraries, of which the following is a representative sample:</p> <p>The latest editions of:</p> <ul style="list-style-type: none"> Johll, M E, (2009) <i>Investigating Chemistry, a Forensic Science Perspective</i>. 2nd ed. Crowe, J. and Bradshaw, T. (2010) <i>Chemistry for the Biosciences</i>. 2nd ed. Oxford: Oxford University Press. Volhardt P. Schore N., (2009) <i>Organic Chemistry - structure and function</i>. 6th ed. London: Freeman Palgrave Macmillan. |
|--------------|--|

FOR OFFICE USE ONLY

| | | | |
|---|------------|---------|---|
| First CAP Approval Date | 17/5/2018 | | |
| Revision CAP Approval Date <i>Update this row each time a change goes to CAP</i> | 06/11/2019 | Version | 2 |