1. **Title of the module**

CHEM5060 (CH506) - Chemical Identification Techniques

1. **School or partner institution which will be responsible for management of the module**

Physical Sciences

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 5

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn and Spring

1. **Prerequisite and co-requisite modules**

**Prerequisites:**

CHEM3080 Molecules, Matter and Energy

CHEM3090 Fundamental Chemistry for Physical Scientists

CHEM3140 Introduction to Biochemistry and Drug Chemistry

PSCI3810 Chemical Skills for Forensic Scientists

or

CHEM3820 Chemical Skills

1. **The programmes of study to which the module contributes**

BSc/BSc with Foundation Year/BSc with Year in Industry/MSci & MChem in Chemistry & Forensic Science

This is not available as a wild module.

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**

Have:

1. Knowledge and understanding of core and foundation scientific physical and chemical concepts, terminology, theory, units and conventions to chemistry and forensic science. FS/FC A1. Chem A1.
2. Knowledge and understanding of areas of analytical, physical, organic and inorganic chemistry as applied to chemistry and forensic science. FS/FC A3. Chem A3.
3. An ability to demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to chemical identification techniques and to apply such knowledge and understanding to the solution of qualitative and quantitative problems. FS/FC B1. Chem B5.
4. An ability to recognise and analyse novel problems related to chemical identification and plan strategies for their solution by the evaluation, interpretation and synthesis of scientific information and data. FS/FC B2. Chem B6.
5. Ability to recognise and implement good measurement science and practice and commonly used chemistry and forensic laboratory techniques. FS/FC B4. Chem B4.
6. Ability to interpret data derived from laboratory observations and measurements in terms of their underlying significance and the theory underpinning them. FS/FC C6. Chem C11.
7. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**

Have:

1. Interpersonal skills, relating to the ability to interact with other people and to engage in team working within a professional environment. FS/FC C6. Chem C19.
2. Time-management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working. Self-management and organisational skills with the capacity to support life-long learning. FS/FC C6. Chem C20.
3. Problem-solving skills, relating to qualitative and quantitative information, extending to situations where evaluations have to be made on the basis of limited information. FS/FC D2. Chem D15.
4. Information-retrieval skills, in relation to primary and secondary information sources, including information retrieval through on-line computer searches. FS/FC D4. Chem D17.
5. Study skills needed for continuing professional development and professional employment. FS/FC D9. Chem D21.
6. **A synopsis of the curriculum**

You will develop an understanding of the theory and application of common techniques for the chemical identification of molecular species. Techniques studied will include nuclear magnetic resonance (NMR), mass spectrometry (MS), infrared and Raman spectroscopy and UV-vs spectrophotometry / fluorimetry.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Core (Compulsory) Text for all students taking CH506

* Spectroscopic methods in organic chemistry - Dudley H. Williams, Ian Fleming, 6th edition 2008
1. **Learning and teaching methods**

Total contact hours: 44

Private study hours: 104

Total study hours: 150

1. **Assessment methods**
	1. Main assessment methods

IR Assignment (4 hours, 5.25%)

NMR Workshop 1 (4 hours, 8.75%)

MS Assignment (4 hours, 7%

NMR Workshop 2 (4 hours, 8.75%)

UV-vis Assignment (4 hours, 5.25%)

Examination 2 hours (65%)

13.2 Reassessment methods

Like-for-like

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | *8.1* | *8.2* | *8.3* | *8.4* | *8.5* | *8.6* | *9.1* | *9.2* | *9.3* | *9.4* | *9.5* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |  |
| Lectures | **×** | **×** | **×** |  |  |  |  |  |  |  | **×** |
| Private Study | **×** | **×** | **×** | **×** | **×** | **×** |  | **×** | **×** | **×** | **×** |
| Workshops |  |  | **×** | **×** | **×** | **×** | **×** | **×** | **×** | **×** | **×** |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |  |
| Coursework | **×** | **×** | **×** | **×** | **×** | **×** |  | **×** | **×** | **×** | **×** |
| Examination | **×** | **×** | **×** | **×** |  | **×** |  |  | **×** | **×** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

n/s

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**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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Revised FSO Jan 2018