1. KentVision Code and title of the module

PSCI7200 – Advanced Project Laboratory

## Division and School/Department or partner institution which will be responsible for management of the module

Division of Natural Sciences (Chemistry and Forensics)

## The level of the module (Level 4, Level 5, Level 6 or Level 7)

Level 7

## The number of credits and the ECTS value which the module represents

30 Credits (15 ECTS)

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

Autumn and Spring

## Prerequisite and co-requisite modules and/or any module restrictions

None

## The course(s) of study to which the module contributes

Optional for the following courses:

MSci Forensic Science

MSc Forensic Science

MChem Chemistry

Not available as an elective module

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

8.1 Demonstrate knowledge and understanding of core scientific physical, biological, and chemical concepts, terminology, theory, units, conventions and laboratory methods in relation to forensic science and/or chemistry.

8.2 Demonstrate knowledge and understanding of advanced theory, concepts, and practice in chemical identification techniques.

8.3 Demonstrate knowledge and understanding of areas of chemistry (including analytical chemistry), numeracy (including data analysis and statistics), forensic investigation and interpretation (including the extraction, analysis, interpretation of physical evidence).

8.4 Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to the subject and to apply such knowledge and understanding to the solution of qualitative and quantitative problems.

8.5 Demonstrate the ability to recognise and solve scientific problems at an advanced level.

8.6 Demonstrate the ability to recognise and implement good measurement science and practice and commonly used forensic/chemical laboratory techniques.

8.7 Demonstrate the ability to select the most appropriate techniques for a given analysis and to use a wide range of advanced apparatus.

8.8 Demonstrate skills in the safe handling of chemical materials, taking into account their physical and chemical properties, including any specific hazards associated with their use and to risk assess such hazards.

8.9 Demonstrate the skills required for the conduct of standard laboratory procedures involved in analytical work and in the operation of standard chemical identification instrumentation such as that used for analytical investigations and separation.

8.10 Demonstrate the ability to interpret data derived from laboratory observations and measurements in terms of their significance and the theory underlying them.

## The intended generic learning outcomes. On successfully completing the module students will be able to:

9.1 Demonstrate a broad range of communication skills.

9.2 Demonstrate numeracy and computational skills, including such aspects as error analysis, order-of-magnitude estimations, the correct use of units, and modes of data presentation.

9.3 Demonstrate efficient information-retrieval skills, in relation to primary and secondary information sources, including information retrieval through on-line computer searches.

9.4 Demonstrate professional information-technology skills such as word-processing and spreadsheet use, data-logging and storage, Internet communication, etc.

9.5 Demonstrate time-management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working

## A synopsis of the curriculum

This module comprises a range of contemporary topics covering methods of analysis and the interpretational issues associated with forensic DNA profiling. The materials take students through the evolution of forensic DNA; RFLP, Quad and the progression of DNA multiplexes to the present day and the practical issues of sample collection, processing and storage, DNA theory and practical DNA processing. Students will appreciate the difficulties associated with mixed samples and the statistical interpretation associated with both single source and mixture interpretation. The module draws upon the latest materials published by the Forensic Science Regulator and the latest quality and legal standards associated with DNA profiling. The module is contextualised throughout using a range of contemporary case studies.

## Reading list

## The University is committed to ensuring that core reading materials are in accessible electronic format in line with the Kent Inclusive Practices.

## The most up to date reading list for each module can be found on the university's [reading list pages](https://kent.rl.talis.com/index.html).

## Contact Hours

Private Study: 258

Contact Hours: 42

Total: 300

## Assessment methods

13.1 Main assessment methods

* Experiment 1 (equivalent to 1,000 words) – 7.5%
* Experiment 2 (equivalent to 1,000 words) – 7.5%
* Experiment 3 (equivalent to 1,000 words) – 7.5%
* Experiment 4 (equivalent to 1,000 words) – 7.5%
* Experiment 5 (equivalent to 1,000 words) – 7.5%
* Experiment 6 (equivalent to 1,000 words) – 7.5%
* Detailed Literature Review Outline (1,000 words) – 15%
* Presentation (15 minutes) – 15%
* Literature Review Dissertation (5,000 words) – 25%

13.2 Reassessment methods

* Like-for-like

## Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section 12) and methods of assessment (section 13)

**Module learning outcomes against learning and teaching methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.7 | 8.8 | 8.9 | 8.10 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Lecture | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Workshop | **x** | **x** | **x** | **x** |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  |  | **x** |
| Laboratory | **x** | **x** | **x** | **x** |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  |  | **x** |

**Module learning outcomes against assessment methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.7 | 8.8 | 8.9 | 8.10 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Experiment Reports x 6 | **x** | **x** | **x** | **x** |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Detailed Outline | **x** | **x** | **x** | **x** | **x** |  |  |  |  |  | **x** |  | **x** | **x** | **x** |
| Presentation | **x** | **x** | **x** | **x** |  |  |  |  |  | **x** | **x** | **x** |  | **x** |  |
| Dissertation | **x** | **x** | **x** | **x** | **x** |  |  |  |  |  | **x** | **x** | **x** | **x** | **x** |

## Inclusive module design

The Division 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

## Campus(es) or centre(s) where module will be delivered

Canterbury

## Internationalisation

Science is an international discipline with widely applicable international resonance. This module presents subject-specific knowledge generated, developed, and refined by scientists around the world. Mastery of the learning outcomes will equip students to apply the knowledge in a wide range of international contexts and these will be addressed in making the content relevant to current global issues. The Division of Natural Sciences is an international community of students and staff and group activities and teaching will provide a platform for internationally-focussed discussion.

**DIVISIONAL USE ONLY**

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

| Date approved | New/Major/minor revision | Start date of delivery of (revised) version | Section revised  (if applicable) | Impacts PLOs (Q6&7 cover sheet) |
| --- | --- | --- | --- | --- |
| 2 Dec 2021 | Minor | Sept 2022 | 10 | No |
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| Revised FSO Jan 2018 |