1. KentVision Code and title of the module

CHEM7400 – MChem Research Project

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

Division of Natural Sciences (Chemistry and Forensic Science)

## 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

75 Credits (37.5 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

Compulsory for the following courses:

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 comprehensive understanding of the procedures and skills required to undertake a research project in chemistry.

8.2 Demonstrate a critical awareness of current research at the forefront of chemistry and discipline boundaries, together with the capacity to evaluate its relevance to scholarship, industrial and commercial practice where appropriate.

8.3 Demonstrate the ability to acquire and assimilate information effectively in any appropriate medium, including the increasing range of networked information resources where relevant.

8.4 Demonstrate critical understanding of the reliability of data from various sources (spanning peer reviewed articles in prominent journals, online databases (e.g. RSC ChemSpider), Wikipedia, newspaper articles, web based discussion forums).

8.5 Demonstrate conceptual thinking to evaluate critically current research and/or methodologies in chemistry, develop critiques of them and, where appropriate, adapt them in the context of both advanced scholarship and industrial/business/commercial/professional relevance.

8.6 Demonstrate working knowledge of a variety of experimental, computational and/or theoretical techniques applicable to current research within chemistry.

8.7 Demonstrate experimental, computational and/or theoretical skills showing the competent use of specialised equipment or techniques, the ability to identify appropriate pieces of equipment and to master new techniques and equipment.

8.8 Demonstrate problem-solving skills, in the context of both problems with well-defined solutions and especially the challenges associated with open-ended problems.

8.9 Demonstrate the ability to plan an experiment or investigation under supervision, including consideration of the appropriate data analysis (errors, statistical significance, etc.) which will be required.

8.10 Demonstrate the ability to formulate problems in precise terms and to identify key issues, and the confidence to try different approaches in order to make progress on challenging problems.

8.11 Systematically, carefully and reliably record experimental/computational data or derivation of theoretical results.

8.12 Demonstrate the ability to analyse critically the results of an experiment or investigation and draw valid conclusions. To evaluate the level of uncertainty in these results and compare them with expected outcomes, theoretical predictions or with published data; thereby to evaluate the (statistical) significance of their results in this context where appropriate.

8.13 Demonstrate the ability to communicate complex scientific ideas, the premises and conclusion of an experiment, investigation or project concisely, accurately and informatively, both orally and in writing, to specialist and non-specialist audiences.

8.14 Demonstrate the ability to present and interpret information using traditional and/or contemporary methods of dissemination (such as graphics static/animation etc.)

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

9.1 Demonstrate an independent learning ability by using their own initiative, to organise oneself to meet deadlines, and to interact constructively with people including those from other disciplines.

9.2 Utilise self-direction and originality in tackling and solving problems, working effectively both individually and in teams at a professional level, making informed judgements in the absence of complete data.

## A synopsis of the curriculum

Students will undertake a project from an available project listing and will work under the guidance of a supervisor. The student will be encouraged to develop some level of research independence within the project remit appropriate of an Level 7 postgraduate student. The project will be assessed on a number of criteria, which will include the project work (the amount, quality, level of effort, etc. appropriate for the level), the preparation of a written report, an oral presentation, and a viva voce examination session. Skills based assessments and a group piece of work will round-off their skills through understanding of different research aspects.

## 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: 508

Contact Hours: 242

Total: 750

## Assessment methods

13.1 Main assessment methods

* Project Report (40 pages – 40%)
* Supervisor Assessment (Over 18 weeks – 8%)
* Presentation (20 minutes – 12%)
* Viva (20 minutes - 12%)
* Progress Poster (1 page – 8%)
* Online Assessment 1 (2 hours – 3%)
* Online Assessment 2 (2 hours – 3%)
* Assessed Group Task (20 minutes – 4%)
* Written Assessment (10 hours – 10%)

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 | 8.11 | 8.12 | 8.13 | 8.14 | 9.1 | 9.2 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | **x** | **x** | **x** | **x** | **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** | **x** | **x** | **x** | **x** |
| Workshop | **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 | 8.11 | 8.12 | 8.13 | 8.14 | 9.1 | 9.2 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project Report | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Supervisor Assessment |  |  |  |  |  |  |  | **x** | **x** |  | **x** |  | **x** |  | **x** | **x** |
| Presentation | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Viva | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Progress Poster | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Moodle Assessment 1 | **x** | **x** |  | **x** |  |  |  |  |  |  |  |  |  |  | **x** | **x** |
| Moodle Assessment 2 | **x** | **x** |  | **x** |  |  |  |  |  |  |  |  |  |  | **x** | **x** |
| Assessed Group Workshop | **x** | **x** |  | **x** |  |  |  |  |  |  |  |  | **x** | **x** | **x** | **x** |
| Written Assessment | **x** | **x** | **x** | **x** | **x** | **x** | **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

Chemical findings contained within this module have been discovered by residents of many diverse countries and recognised as internationally important by awards such as the Nobel Prize. All the students will be well versed in internationally recognised ‘language’ of structure and mechanism in chemistry.

**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) |
| --- | --- | --- | --- | --- |
| 9 Dec 2021 | Minor | Sept 2022 | 10, 12 | No |
| 22 Nov 2022 | Minor | Sept 2023 | 13-14 | No |

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| Revised FSO Jan 2018 |