PARTNERS ACADEMIC SUMMER SCHOOL 2025
Syllabus for Chemistry

Subject Area

This syllabus is for PARTNERS applicants seeking to progress to the degrees of:

- F100 BSc Hons Chemistry
- F103 MChem Hons Chemistry
- F123 MChem Hons Chemistry with Medicinal Chemistry
- F151 BSc Hons Chemistry with Medicinal Chemistry

Aims

To allow students to demonstrate their potential to succeed in specified degree programmes by showing a grasp of entry-level subject-specific knowledge, understanding, cognitive and subject-specific skills.

Learning Outcomes

A good knowledge and understanding of …

- By the end of the Summer School, students will be expected to demonstrate an introductory understanding of key concepts and practical skills in Organic chemistry, and also learn a few topics from Physical, Inorganic and Computational chemistry.

The ability to apply this knowledge and critical understanding to…

- Throughout the week, students will actively apply their subject-specific knowledge and develop core academic and practical skills through a combination of lectures, workshops, and laboratory-based sessions. The formative assessment will include quizzes and short-answer worksheets.

Competence in…

- Chemistry strand students are expected to demonstrate such practical skills as safe laboratory practice, accurate measurement and handling of chemicals, observation and data collection and analysis. Academic skills will include note-taking and listening, problem-solving, written and verbal

communication, critical thinking and time management.

Summer School Syllabus

Content:
Organic chemistry: drawing and naming organic compounds; reactions of organic compounds and reaction mechanisms, organic spectroscopy.
Practical chemistry: synthesis and analysis of a painkiller.
Physical Chemistry: energy and dynamics - chemiluminescence.
Computational chemistry: computational structure-based drug design.
Inorganic chemistry: An introduction to coordination compounds.

Teaching methods:
Lectures: both in-person and pre-recorded online.
Laboratory practical sessions: hands-on experience in the teaching laboratory.
Workshops: both in-person and online.
Independent / Online tasks: pre-recorded short lecture videos and quizzes.
Formative assessment task - a lab report.

Purpose / Objectives:
To gain confidence working in the university teaching lab.
To understand key chemical concepts and how they link across different areas of chemistry.
To develop academic skills such as scientific communication, problem solving and data analysis.
To get a feel for what it is like to study chemistry at degree level.

Activities for Personal Study

Compulsory activities:
Pre-lab preparation: read through the lab handouts provided in advance, watch video clips of experiments and make brief notes on the purpose of the experiment and what you expect to observe.
Online workshops: watch relevant video clips and complete relevant quizzes before the online workshops.
Formative assessment preparation: use lab notes and data from practical sessions to start analysing results and planning how to present them. Contact lab organiser if you have any questions on the write-up before the deadline.

Optional activities:
Core chemistry recap: review key aspects of organic chemistry from A-level or equivalent.

Suggested websites:
https://www.chemguide.co.uk/

https://www.khanacademy.org/science/chemistry

On-Campus Teaching:

Monday 30th June & Tuesday 1st July

Online Teaching:

Wednesday 2nd (PM only) Thursday 3rd & Friday 4th (AM only) July

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Formative Assessment Details

A lab report with supporting theory questions
More details will be given during the event by your Academic Strand Lead.

Hand-in Method

Digital

Assessment deadline

Friday 11th July – 5pm