UNSW Course Outline

CHEM1777 Chemistry of Cosmetics and Personal Care Products - 2024

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General Course Information

Course Code : CHEM1777
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : Faculty of Science
Academic Unit : School of Chemistry
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course will explain how cosmetics and personal care products work from a scientific standpoint. Chemistry plays a key role in the manufacturing and continual improvement of personal care and other household products. It is involved in all stages, from the chemical

extraction of natural products to the packaging of final consumer products. Throughout the course, students will learn the interaction of skin-care chemicals with lipids in the skin, the suspension of oil in emulsions, and how sunscreens filter or scatter UV light. Furthermore, the students will learn how to interpret ingredient lists and understand their roles. Marketing hype and trends, such as anti-aging, will be dissected to examine the underlying scientific principles and negative campaigns analysed to evaluate their veracity.

The course is aimed at students across all year levels and Faculties at the university. Presumed knowledge is Year-10 general science. All lectures will be delivered in a combination of pre-recording and live-streaming. In face-to-face laboratory experiment sessions, students will have first-hand experience and practical exercises aligned with course topics. Additionally, students will learn analytical techniques used in the personal care products industry to assess products before taking them to market.

Course Aims

The aim of this course is to introduce the role of chemistry in cosmetics and personal care products – products everyone encounters on a daily basis. The course will provide students with knowledge they can apply to everyday observations and experiences with cosmetics and personal care products, helping students to develop a “chemical intuition”.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the chemical interactions of cosmetic and personal care products with the human body, packaging, and the environment.
CLO2 : Identify and describe key chemical considerations in product formulations, drawing links between the ingredients of a product and properties such as stability and acidity.
CLO3 : Evaluate cosmetics and personal care products by applying chemistry principles.
CLO4 : Communicate scientific research in written and verbal form to expert and non-expert audiences.

Course Learning Outcomes	Assessment Item
CLO1 : Describe the chemical interactions of cosmetic and personal care products with the human body, packaging, and the environment.	• Final Presentation • Online Quizzes/Discussion • Laboratory Report
CLO2 : Identify and describe key chemical considerations in product formulations, drawing links between the ingredients of a product and properties such as stability and acidity.	• Final Presentation • Online Quizzes/Discussion
CLO3 : Evaluate cosmetics and personal care products by applying chemistry principles.	• Laboratory Report • Online Quizzes/Discussion
CLO4 : Communicate scientific research in written and verbal form to expert and non-expert audiences.	• Final Presentation • Laboratory Report

Learning and Teaching Technologies

Moodle - Learning Management System | Blackboard Collaborate

Learning and Teaching in this course

The content of this course will be delivered in three main ways:

1. Workshops (2 hours / week), with online recorded content provided by lecturers and industry specialists.

2. Laboratory work (2 hours, weeks 2-3, 4-5, 7-8, and 9-10). Experiments will also give students the opportunity to understand the content taught in lectures by putting into practice some of the theory.

3. Moodle engagement (1 hour per week). Students will respond to a prompt on a Moodle discussion forum, and engage with each others' responses.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Final Presentation Assessment Format: Group	20%	Start Date: Not Applicable Due Date: Not Applicable
Online Quizzes/Discussion Assessment Format: Individual	40%	
Laboratory Report Assessment Format: Individual	40%	

Assessment Details

Final Presentation

Assessment Overview

The final assessment for this class is a capstone presentation to combine knowledge gained from the term and research to deliver a presentation on a specific topic. The potential presentation topics will be provided in week 6. As a group of 4~5 students, your group will present to a panel of academics and your peers in person in week 11. The format is 12-minute presentation followed by a 3-minute Q&A from the audience. Feedback will be provided through a marked rubric with comments from teaching staff.

Course Learning Outcomes

- CLO1 : Describe the chemical interactions of cosmetic and personal care products with the human body, packaging, and the environment.
- CLO2 : Identify and describe key chemical considerations in product formulations, drawing links between the ingredients of a product and properties such as stability and acidity.
- CLO4 : Communicate scientific research in written and verbal form to expert and non-expert audiences.

Assessment Length

maximum 15 min

Assignment submission Turnitin type

This is not a Turnitin assignment

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.
For more information on Generative AI and permitted use please see here.

Online Quizzes/Discussion

Assessment Overview

There are five weekly discussions you must complete between weeks 1-10. You will be expected to actively engage with the material via Moodle, which will either be in the form of (i) Moodle quiz or survey, to reinforce your chemical knowledge, or (ii) Moodle discussion, to link together knowledge from the workshops, labs, and lectures, with your everyday experiences of cosmetics and personal care products.

These are intended to provide feedback for the learning outcomes associated with each topic. The potential topics assess the material presented in lecture and tutorial classes during the previous week. Students should post at least twice in each discussion, responding to the topic questions and to other students. Weekly discussions are open for one week, and feedback will be provided within 2 weeks of submission.

Course Learning Outcomes

- CLO1 : Describe the chemical interactions of cosmetic and personal care products with the human body, packaging, and the environment.
- CLO2 : Identify and describe key chemical considerations in product formulations, drawing links between the ingredients of a product and properties such as stability and acidity.
- CLO3 : Evaluate cosmetics and personal care products by applying chemistry principles.

Assessment Length

As per template

Assignment submission Turnitin type

This is not a Turnitin assignment

Generative AI Permission Level

Simple Editing Assistance

In completing this assessment, you are permitted to use standard editing and referencing functions in the software you use to complete your assessment. These functions are described

below. You must not use any functions that generate or paraphrase passages of text or other media, whether based on your own work or not.
If your Convenor has concerns that your submission contains passages of AI-generated text or media, you may be asked to account for your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
For more information on Generative AI and permitted use please see here.

- You may use AI tools for grammar and spelling checks, but your writing should be entirely your own.

- Generative AI is not allowed for quizzes.

Laboratory Report

Assessment Overview

Over four laboratory classes (Weeks 2–9), you will expand on lecture content and provide first-hand experience exploring the chemistry behind cosmetics and household products. The practical exercises will align with course topics. Each lab contributes to 10% of the overall course mark. After each lab, you will prepare a report in which you will answer guiding questions to interpret and discuss your results to reinforce and extend your understanding of the principles presented in lectures. Reports are due one week after each lab class, and written feedback will be provided within two weeks of submission.

Hurdle requirements: You must attend and submit reports for 3/4 laboratory classes and achieve an overall mark in the lab component of 50% to pass the course. Completing a lab induction (Week 1) and pre-lab exercises are compulsory before attending lab classes to ensure your safety.

Course Learning Outcomes

- CLO1 : Describe the chemical interactions of cosmetic and personal care products with the human body, packaging, and the environment.
- CLO3 : Evaluate cosmetics and personal care products by applying chemistry principles.
- CLO4 : Communicate scientific research in written and verbal form to expert and non-expert audiences.

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General Assessment Information

Assessments must be submitted on Moodle prior to 11:55 pm on the due date. The group presentation will be marked during Week 12.

Any assessment task submitted past the due date will incur a 10% per day penalty up to a maximum of 7 days. After 7 days a mark of 0% will be awarded however students may still submit work after this period at the discretion of the unit coordinator to receive feedback. Penalties will be applied to any day in excess of the due date including weekends, public holidays and non-teaching periods.

Extensions for any assessment item will require application for Special Consideration through the UNSW formal channels.

Grading Basis

Standard

Requirements to pass course

Important note that the standard assessment procedures for chemistry are as follows:

To be awarded a pass in this subject, students must satisfy three conditions:

(i) An overall pass (≥ 50%) in the laboratory component;

(ii) Satisfactory overall performance (≥ 50%) in the final presentation.

Failure to satisfy these criteria could result in either a FL or UF (Unsatisfactory Fail) grade being awarded, or further assessment being offered at the discretion of the course coordinator and the School Examiners' Meeting, according to UNSW Procedures. Students must ensure their availability to attend any supplementary examination that will usually be offered in the week suggested by UNSW; inability or failure to attend a supplementary examination may lead to a FL or UF (Unsatisfactory Fail) grade being confirmed.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Workshop	• Chemical Ingredients in Cosmetics
	Assessment	• Moodle Exercise 1 • Moodle Quiz 1
Week 2 : 16 September - 22 September	Workshop	• Guest Lecture: Cosmetic Chemistry - The Dermatologist Perspective
	Laboratory	• [Group A] Lab Session 1
	Assessment	• Moodle Quiz 2
Week 3 : 23 September - 29 September	Workshop	• Biophysical Characteristics of Skin • Chemistry of Moisturiser and Sunscreen
	Laboratory	• [Group B] - Lab Session 1
	Assessment	• [Group A] - Lab report 1 • Moodle Quiz 3
Week 4 : 30 September - 6 October	Workshop	• Guest Lecture by Dentist
	Laboratory	• [Group A] Lab Session 2
	Assessment	• Moodle Quiz 4
Week 5 : 7 October - 13 October	Workshop	• Introduction to Surfactants
	Laboratory	• [Group B] - Lab Session 2
	Assessment	• [Group A] Lab Report 2 • Moodle Discussion 2
Week 6 : 14 October - 20 October	Other	Flexibility week - no classes
Week 7 : 21 October - 27 October	Workshop	• Structure of Hair and Products
	Laboratory	• [Group A] Lab Session 3
	Assessment	• [Group B] Lab Report 2 • Moodle Discussion 3
Week 8 : 28 October - 3 November	Workshop	• Chemistry of Fragrances
	Laboratory	• [Group B] Lab Session 3
	Assessment	• [Group A] Lab Report 3
Week 9 : 4 November - 10 November	Workshop	• Cosmetic Safety, Nanotechnology, and Green Cosmetics
	Laboratory	• [Group A] Lab Session 4
	Assessment	• [Group B] Lab report 3
Week 10 : 11 November - 17 November	Workshop	• Guest Lecture from Cosmetic Engineer
	Laboratory	• [Group B] Lab Session 4
	Assessment	• [Group A] Lab Report 4 • [Group B] Lab Report 4

Attendance Requirements

Attendance: Students are expected to attend all laboratory sessions and participate satisfactorily.

The student is expected to prepare for the lab by reading and understanding the theoretical background and completing any pre-lab questions.

Students are expected to follow the UNSW policy governing the use of email, social networks and discussion forums.

General Schedule Information

Laboratory sessions take place on Tuesdays from 2 pm to 4 pm.

Course Resources

Prescribed Resources

All readings will be supplied through Moodle or otherwise provided by lecturers. Computer laboratories and study spaces are available in the Gibson computer laboratory (Ground floor, Dalton building).

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	DJ Kim				By appointment	Yes	Yes
Lecturer	Nicole Rijs				By appointment	No	No

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the UNSW Student Code of Conduct Website.

Academic Honesty and Plagarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.
Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.
Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The Current Students site,
- The ELISE training site, and
- The Use of AI for assessments site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct

Submission of Assessment Tasks

Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot

submit an assessment, and
- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration

Important note: UNSW has a "fit to sit/submit" rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- The Current Students Gateway
- Student Support
- Academic Skills and Support
- Student Wellbeing, Health and Safety
- Equitable Learning Services
- UNSW IT Service Centre
- Science EDI Student Initiatives, Offerings and Guidelines