CHEM4091: ADVANCED COSMETIC CHEMISTRY

Effective Term
Semester B 2025/26

Part I Course Overview

Course Title
Advanced Cosmetic Chemistry

Subject Code
CHEM - Chemistry
Course Number
4091

Academic Unit
Chemistry (CHEM)

College/School
College of Science (SI)

Course Duration
One Semester

Credit Units
4

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
CHEM3083

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract
This course is designed to prepare students for careers as cosmetic formulation chemists, combining both lectures and laboratory sessions to provide a balanced and practical learning experience. Students will gain foundational knowledge in

developing various cosmetic formulations, evaluating the performance of cosmetic products, and understanding global cosmetic regulations. A significant focus of the course is the hands-on experience provided through extensive laboratory work. The course will be co-taught by the course coordinator and experts appointed by the Hong Kong Society of Cosmetic Chemists (HKSCC).

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Demonstrate proficiency in experimental techniques for analyzing cosmetic raw materials, formulating, and evaluating cosmetic products	30	x	x	x
2	Apply critical and logical thinking skills to the design and development of cosmetic formulations	30		x	x
3	Deliver formal oral presentations on designed cosmetic products, effectively summarizing the background, methodologies, and results	20		x	x
4	Acquire comprehensive knowledge of global cosmetic regulations and their applications	20		x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Interactive lectures	Engage in interactive lectures led by the course coordinator and representatives from the Hong Kong Society of Cosmetics (HKSCC), which introduce key concepts of cosmetic raw material analysis, formulation, and efficacy evaluation, fostering a comprehensive understanding of the subject matter	1, 4	3-hour lecture and 1-hour tutorial for 6 weeks

2	Experiments	Participate in hands-on laboratory experiments that focus on analyzing cosmetic raw materials, fabricating cosmetic products, and evaluating their performance, providing practical experience to reinforce theoretical knowledge	1, 2	Total 6 experimental sessions (4-hour each)
3	Group Project and Presentation	Collaborate on group projects that involve preparing written reports and delivering oral presentations on designed cosmetic products, encouraging independent research, teamwork, and effective communication of key findings	3	Presentation in the last week of teaching

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Quizzed and Assignments	1, 2, 4	10	-	Yes
2	Laboratory Performance	1, 2	30	-	Yes
3	Group Project and Presentation	3	30	-	Yes

Continuous Assessment (%)

70

Examination (%)

30

Examination Duration (Hours)

2

Minimum Continuous Assessment Passing Requirement (%)

40

Minimum Examination Passing Requirement (%)

40

Assessment Rubrics (AR)

Assessment Task

Quizzes and Assignments

Excellent (A+, A, A-)

Demonstrates excellent grasp of the important concepts to various aspects of the topic covered in this course, and can apply these concepts to solve problems with clear and logical explanations

Good (B+, B, B-)

Able to describe and explain the important concepts to several aspects of the topic covered in this course

Fair (C+, C, C-)

Student completes most of the assessment tasks and can describe some key elements on the topics covered in the course. Shows limited ability to apply concepts

Marginal (D)

Student has little participation and interest, and demonstrates limited ability in analysis

Failure (F)

Student has no participation

Assessment Task

Laboratory Performance

Excellent (A+, A, A-)

Demonstrates excellent grasp of the important techniques covered in the laboratory sessions. Experimental designs are logical and practical

Good (B+, B, B-)

Able to perform most of the experiments. Reasonable experimental designs

Fair (C+, C, C-)

Able to perform some of the experiments. Shows limited experimental designs

Marginal (D)

Student has little participation and interest, and demonstrates limited ability in performing experiments

Failure (F)

Student has no participation, interest or original thought

Assessment Task

Group Project and Presentation

Excellent (A+, A, A-)

Excellent logical structure with coverage and relevance. The work is presented in an accurate and concise fashion. Fluent language with a formal tone. Good timing. Provides detailed answers to all questions

Good (B+, B, B-)

Good logical structure with coverage and relevance. The work is presented in an accurate fashion. Appropriate use of language. Good timing. Can answer all questions in detail

Fair (C+, C, C-)

Acceptable logical structure with coverage and relevance. The work is presented in an acceptable fashion. Reading from single-page notes or cue cards

Marginal (D)

No structure with no/little coverage and relevance. Very easy to find mistakes in the presented work. Very poor timing. Fails to answer most questions and has difficulty understanding many of them

Failure (F)
Zero contribution in the whole presentation, including information research, data processing, preparation works and presentation

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Assessment Task
Examination

Excellent (A+, A, A-)
Demonstrates a deep understanding of selected topic and able to critically analyze the issues of the question

Good (B+, B, B-)
Demonstrates a good understanding of selected topic and able to reasonably analyze the issues of the question

Fair (C+, C, C-)
Demonstrates a limited understanding of selected topic and does not go beyond a standard description of the issues of the question

Marginal (D)
Demonstrates a weak understanding of selected topic and presents limited perspective of the topic

Failure (F)
Does not present evidence of a reasonable understanding of the question and omits key issues of the question

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Part III Other Information

Keyword Syllabus
Week 1: Cosmetic Formulation Design: raw materials and fabrication technique (i)
Week 2: Cosmetic Formulation Design: raw materials and fabrication technique (ii)
Week 3: Cosmetic Raw Materials and Productions Evaluation Methods (i)
Week 4: Cosmetic Raw Materials and Productions Evaluation Methods (ii)
Week 5: Cosmetic Product Pilot Production: an introduction
Week 6: Global Cosmetic Regulations
Week 7: Lab session: raw material analysis
Week 8: Lab session: common cleansing products
Week 9: Lab session: common skin care products
Week 10: Lab session: common color cosmetic products
Week 11: Lab session: group project session (i)
Week 12: Lab session: group project session (ii)
Week 13: Group project presentation session

Reading List

Compulsory Readings

	Title
1	Chemistry and Manufacture of Cosmetics: Science 4th edition (ISBN-13: 978-1932633474)