

Module Details	
Module Title	Cosmetic Science
Module Code	CFS5026-B
Academic Year	2024/5
Credits	20
School	School of Chemistry and Biosciences
FHEQ Level	FHEQ Level 5

Contact Hours	
Type	Hours
Seminars	8
Practical Classes or Workshops	8
Lectures	20
Directed Study	164

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year

Module Aims
<p>This module will provide students with the fundamental and applied chemical, biological and commercial concepts of cosmetic science. Students will gain an appreciation for the market drivers and regulatory developments shaping the international cosmetics market, and will be able to translate chemical and biological scientific principles into applied industrial settings. Students will gain knowledge and skills underpinning the cosmetic science sector of value for entry into the workplace.</p>

Outline Syllabus

Chemistry Aspects of Cosmetic Science: Students will receive an overview of the fundamental principles of polymer and colloid science which underline many cosmetic formulations. Fundamental physical chemistry concepts will be critically evaluated in the context of final product formations, with attention paid to the research and development process required for product commercial release and reformulation.

The main ingredient classes (surfactants, emollients, rheology modifiers, conditioners, preservatives, sunscreens and dyes/pigments) will be reviewed in relation to formulation design to meet a specific product brief. Biological Aspects of Cosmetic Science: Students will be introduced to important concepts in skin science within skin, hair and nail biology.

These biological concepts underline the health (product reactions), safety and efficacy aspects of cosmetic science. We will train students to discuss and critically evaluate positive and negative biological impacts of cosmetic products on human physiology. Measurement and Evaluation: Students will critically evaluate and compare different technologies employed to measure and compare the composition and impact of cosmetic products.

These will include skin and hair substrate attribute measurements, product form and various visual and consumer methods. Students will gain an appreciation of ethics for in vitro versus in vivo testing and requirements for animal replacement models. The Cosmetics Business Sector: Students will investigate the different claims, unique selling points and market features of the cosmetics and beauty sector. Students will evaluate the drive to increased sustainability and natural sourcing of raw materials, and the impact of the proposed circular economy on existing cosmetic companies. The requirements to advance products to market through the regulatory pathways will be discussed.

The Science of Cosmetic Product Launch: Students will explore the final stages of product release onto the cosmetics market. Testing methods, such as safety and stability trials and microbiological evaluation, are critical components of any cosmetic product. These methods will be discussed to give students a broad overview of the scientific complexity of any product release or reformulation.

Learning Outcomes

Outcome Number	Description
01	Describe and compare skin, hair and nails as substrates and targets for cosmetic products and understand the factors that impact product innovation and performance.
02	Develop understanding of colloid and polymer chemistry to describe physical behaviour of complex solutions containing mixtures of multiple chemical species.
03	Apply the basics of formulation science to the different types of cosmetic formulation and understand the main classes of ingredients and their contribution to the performance of a product.
04	Appreciate the methods to measure both substrate (e.g. skin, hair) and formulation (stability, composition) and to evaluate product performance, stability and safety.
05	Understand and be able to express an opinion on relevant issues to cosmetic science, such as sustainability, natural ingredients and the circular economy.
06	Appreciate the cosmetics business and how products are introduced to the market and the various regulations surrounding this sector in the UK and internationally.

Learning, Teaching and Assessment Strategy

N/A

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Presentation	Group problem solving presentation (20 Mins)	40%
Summative	Examination - Closed Book	Summative Assessment: Closed Book (90 minutes)	60%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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