

COSC 6547: Skin Care Raw Materials and Formulations

School of Natural Sciences
Fairleigh Dickinson University, T-H Campus

General Information:

Semester: Spring 2008

Day/Time: Tuesdays Evenings 5.25- 8.00

Room: 1143 DH

Instructor: Mihaela Gorcea, Adjunct Faculty, Fairleigh Dickinson University

Contact: Work Phone: 973- 628 3286; Cell Phone: 201 - 658 6102; mgorcea@ispcorp.com

Text References: Instructor Handouts.

Recommended text: Not required.

Optional Text: Beginning Cosmetic Chemistry, 2nd edition, Randy Schueller and Perry Romanowski, Allured, 2003

Supplement: Harry's Cosmeticology, M. Rieger, 8th Edition, Chemical Publishing Co., Inc. New York, 2000.

Course Description:

The course will begin with an introduction to skin, its physiology, primary function and major constituents. Following the introduction the course will consider the fundamental characteristics, performance, ingredients and technologies used in cosmetic formulations such as: emulsifiers, rheology modifiers and thickeners, moisturizers, humectants, emollients, preservatives, vitamins, antioxidants, AHA and BHA, skin protectants, skin lighteners, sunscreens. Topics covered in the course will also include emulsion technology, types of emulsions, stabilization of emulsions and preparation methods for emulsions. Fundamental categories of skin care and OTC products currently on the market will also be discussed; these will include body & facial moisturizers, anti-aging technologies, anti-acne products, skin lighteners, skin protectants, sunscreens, self-tanners, bath and shower products, shaving products, spa products. Each class will also address formulation approaches and functional methods of developing specific cosmetic skin care products.

Objective:

Upon successful completion of this course, students will be familiar with the basic types of skin care raw materials used in the cosmetic industry, emulsion technologies, categories of cosmetic and OTC skin care products as well as understand how to formulate cosmetic skin care products.

Format:

- **Lecture and interactive discussion**
- **Mandatory attendance**
You are expected to attend every lecture. Attendance will be taken and will contribute toward your grade. There will be NO MAKEUP EXAMS FOR MISSED EXAMS. Consideration will be given only in the case of a documented and unavoidable company travel, business obligations, or medical emergency.
- **Exams**
- There will be a midterm exam as well as a cumulative final exam given during final week.

Grading Policy:

Midterm Exam	40%
Final Exam (cumulative)	50%
Quizzes & Oral presentation	10%

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Course Outline**

Week Nr.	Lecture/date	Expected Topic
1	Lecture 1 January 29	Introduction to Skin Care ; Overview of skin physiology, structure and function; Types of skin; Basic US regulations for marketing of skin care cosmetic products; Categories of skin care products; Product Development Process; Description and classification of main cosmetic vehicles.
2	Lecture 2 February 5	Emulsion technologies; surfactant classification; Types of surfactants and examples; Types of emulsions; In class exercises
3	Lecture 3 February 12	Emulsion technologies; types of emulsions; typical emulsion formula composition; manufacturing cosmetic emulsions; Emulsion stabilization; Formulation guidelines and examples Quiz 1 from lecture 1 & 2
4	Lecture 4 February 19	Dry skin and skin moisturization; Moisturizer ingredients classification; Moisturizer formulations examples In Class exercises
5	Lecture 5 February 26	Rheology general consideration; Rheological additives; Formulations guidelines and examples Quiz 2 from lecture 3 & 4
6	Lecture 6 March 4	Preservatives definition; types of microorganisms; factors influencing preservatives efficacy; preservatives examples Midterm review
7	No Lecture March 11	Midterm examination
8	Spring Break May 18	Spring break
9	Lecture 7 March 25	Oily skin and anti-acne ingredients; Sensitive skin; Skin protectant ingredients and examples
10	Lecture 8 April 1	Skin aging and anti-aging technologies; Formulation strategies and examples
11	Lecture 9 April 8	Sunscreens; Definition; UV filters classification; Formulations strategies and examples Quiz 3 from lectures 7 & 8
12	Lecture 10 April 15	Antioxidants in cosmetics -guest lecturer
13	Lecture 11 April 22	Miscellaneous skin care products: Self- tanners; Skin Lighteners; Spa products; Formulation examples In -class exercises
14	Lecture 12 April 29	Miscellaneous skin care products: Skin Cleansing products; Toners and astringents; Formulation examples In -class exercises
15	Lecture 13 May 6	Oral presentations ; Final Exam review
16	Final Exam May 13	Final Examination -cumulative

Lecture schedule and topic is subject to change with Instructor notification
Guest lectures may provide information on relevant topics with Instructor notification

Oral Presentation Requirements

Oral presentation - Due May 8, 2008 (Topic Due no later than April 8th)

Each student has to prepare an oral presentation (hard-copy included) due to me on May 8, 2008. The presentation has to be **10 minutes in length** and **in PowerPoint format**.

Topic

Select one of your preferred ingredients that is used in the skincare industry (e.g. a moisturizer, an emulsifier, a thickening agent, an anti aging agent, sunscreen, skin lightener, or any other ingredient) and prepare a presentation (in PowerPoint) covering the selected topic.

Points to be covered/ included in presentation:

- Title of the presentation
- Introduction with outline
- INCI name of the ingredient
- Chemical classification
- Molecular weight
- Chemical structure
- Physical chemical properties
- Specifications: purity, solids, pH (if applicable)
- Role in skincare applications
- Scientifically justify the reason(s) of selecting your ingredient

With your preferred ingredient develop a formulation including:

- Product name
- Product type (gel, emulsion)
- Weight percentages
- Phase sequencing
- Ingredients trade name and INCI names with suppliers (if available)
- Functions of all other ingredients used in your formula
- Manufacturing procedure
- Ingredient list
- Estimate product's appearance and rheology
- Targeted skin type
- Product testing

Conclusions of the presentation

Please Note:

- **Academic Integrity:**
Cheating, in any form, will not be tolerated. Students caught cheating will receive a zero for that particular assignment. Details regarding FDU's new Academic Integrity policy are readily available on-line at <http://fduinfo.com/studentlife/handbook/>
- **Cell Phones:**
Cell phones should be turned off during lecture and exam periods.