COURSE OUTLINE

1.GENERAL

SCHOOL	SCHOOL OF HEALTH AND CARE SCIENCES		
ACADEMIC UNIT	BIOMEDICAL SCIENCES -AESTHETICS AND COSMETIC SCIENCE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	4061-4062	**SEMESTER**	4
COURSE TITLE	DERMATO-COSMETIC SCIENCE I		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
LECTURES	3	
LABORATORY EXERCISES	3	
		7
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	SC
PREREQUISITE COURSES:	NO
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	https://bisc.uniwa.gr/course/dermatokosmitologia-i/ https://eclass.uniwa.gr/courses/AISTH111/ https://eclass.uniwa.gr/courses/AISTH116/ https://ocp.teiath.gr/modules/video/?course=AISTH_UNDE103

2.LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The aim of the course is for students to understand the impact of the active ingredients of dermato-cosmetics on the biochemical function of the skin. The mechanism of action, and the incorporation in dermato-cosmetics of substances acting against chrono-aging, environmental aging i.e photo-aging are described.

The goal of the course is for students to understand the principles of the design and development of dermato-cosmetic formulations with bioactive substances. Cosmetics that contain bio-active substances and possess a dermato-cosmetic activity along with dermatological properties and can support the activity of pharmaceuticals often called dermato-cosmetics

Learning outcomes

After the end of the course students will be able to:

- Understand the mechanism of action of bioactive agents used in dermato-cosmetics
- Solve stability problems of the bioactive substances incorporated in the cosmetics
- Perform experiments and to determine the physicochemical stability of the finished products
- Know the criteria of the selection of the packaging material and to take under consideration potential incompatibilities between ingredients and packaging
- Design and develop in a laboratory scale, multi-functional formulation of advanced dermato-cosmetics-skin care products with active substances such as herbal extracts, skin anti-oxidants, peptides, healing compounds and delivery systems i.e cyclodextrines and liposomes for the increase of dermal absorption and the stability of active ingredients

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Project planning and management* *Respect for difference and multiculturalism* *Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking* *……* *Others…* *…….*

Working independently, Team work, Working in an international environment, Working in an interdisciplinary environment, Decision-making (laboratory exercises), Respect for the natural environment, Production of new research ideas, Production of free, creative and inductive thinking

3.SYLLABUS

LECTURES

1. Face cleansing emulsions. Mechanism of action. Moisturization of keratin, Impact of surfactants to the hydration of skin keratin. Moisturizing agents. Emollients-Mechanisms of action. Hydrocarbons, Fatty alcohols, Esters, Herbal oils, Herbal extracts.
2. Hygroscopic agents. Incorporation in cosmetics-Mechanism of action. Multi-alcohols, Carbohydrates, acids and their salts.
3. Formulation of hand protective emulsions, body moisturizing emulsified lotions, vanishing creams and base-creams for the application of make-up products.
4. Multi-phase dispersed systems based on silicones. Anhydrous emulsions, non-emulsified cleansing products.
5. Introduction to delivery systems of active ingredients. Liposomes and cyclodextrins. Stability. Dermal absorption of the actives through delivery systems. Application to cosmetics and skin biomedical products.
6. Dermato-cosmetics. New active ingredients, skin anti-oxidants for the treatment of aging, environmental aging i.e. photoaging. Mechanism of action.
7. Oligopeptides in anti-aging products of topical skin application. Incorporation, stability, dermal absorption. Peptides with anti-oxidant activity, growth-factors mimicking peptides, decorin analogs, peptides “acting” on neurotransmitters.
8. Biochemistry of melanin synthesis. Skin lighteners-mechanism of action.
9. Healing. Healing agents and actives. Healing peptides. Herbal ingredients with healing activity, Silicones as healing films.
10. Dermal permeability enhancers. Mechanism of action.
11. Cellulitis, active ingredients for the topical treatment cellulitis. Mechanism of action.
12. Toning and astringent lotions. Herbal constituents and extracts for alcoholic and non-alcoholic lotions.
13. Acne. Products for acne. Mechanism of action of active ingredients. Antiseptic ingredients, exfoliating products, sebum-controlling agents, anti-inflammatory agents.
14. Introduction to the packaging of cosmetic products. Comparison of advantages and disadvantages between plastic packaging and glass. Propellants. Incompatibility between active ingredients and packaging.

LABORATORY EXERCISES

1. Determination of type of emulsions
2. Solubilization. Techniques for the a) selection of the best solubilizer for a given perfume and) b the minimal concentration of the solubilizer for the solubilization of a the perfume.
3. Stability of cosmetic products. Determination of water in cosmetic products. Thermal

method. Azeotropic distillation.

4. Rheology. Determination of the viscosity. Newtonian and non-Newtonian products
5. Emulsified cleansing lotion. Development, determination of the viscocity, rheology diagrams, pH measurement.
6. Facial liquid cleanser-one phase. Development, determination of viscosity-comparison of the rheological properties with emulsified systems, rheology diagrams, pH measurement.
7. Exofliating cream. Development, incorporation of microbeads (polyethylene or herbal)
8. Liquid make-up. Development. Techniques for the suspension of powders in emulsified products.
9. Anti-aging cream. Incorporation of a tocopherol-cyclodextrin system. Stability-Accelerated test.
10. Anti-aging cream, Incorporation of all-trans retinol to liposomes. Stability study. Accelerated test.
11. Anti-aging serum. Incorporation of liposomal peptides in gel. Viscosity enhancers and liposomes.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to- face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of ICT in teaching, Support of the learning process through e-class for the theoretical and laboratory part, videos of the experiments of the course under the auspices of the Institution, Exercises through e-class. Laboratory education
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	*Activity* / *Semester workload* Lecture: 50 Laboratory practice: 54 Educational visit: 10 Independent study: 60 Course total: *174*
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	LECTURES Language Greek Final exam: multiple choice, open-ended questions, characterization of sentences as True or False, problem solving 100 % Or Final exam multiple choice, open-ended questions, characterization of sentences as True or False, problem solving 60% and public presentation 40% Criteria are given LABORATORY EXERCISES Language Greek 1. Laboratory work-results/experiment. Written work Total 30% 2. Questionnaires 35 % 3. Final exam: multiple choice, open-ended questions, characterization of sentences as True or False, problem solving 35 % Criteria are given

(1) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Tsirivas E., and Varvaresou A. and Papageorgiou S. Applied Cosmetic Science-Dermato-cosmetics ISBN 978-960-583-151-6. PARISIANOS SA, (2016).
2. Tsirivas E., Papageorgiou S and Varvaresou A. Laboratory exercises of Development of dermato-cosmetic products (2019) University of West Attica.
1. Sakamoto K., Lochhead R., Maibach H. and Yamashita Y. Cosmetic Science and Technology: Theoretical Principles and Applications, Hardcover ISBN: 9780128020050, eBook ISBN: 9780128020548, Elsevier (2017).
2. Schlossman M.L. The Chemistry and Manufacture of Cosmetics. Vol 2 Formulating ISBN-13: ISBN-13: 978-1932633474 4th edition, Allured Publishing Co. USA (2008).
3. Schlossman M.L. The Chemistry and Manufacture of Cosmetics. Vol 3 Ingredients ISBN-13: 978-

0931710773 4th edition, Allured Publishing Co., USA (2008).

4. Dayan N. and Kromidas L. Formulating, Packaging, and Marketing of Natural Cosmetic Products. Print ISBN: 9780470484081 eBook ISBN: 9781118056806, John Wiley & Sons, Inc. (2011).
5. Schueller R. and Romanowski P. Beginning Cosmetic Chemistry. ISBN-13: 978-1932633535 3rd edition, Allured Publishing Co., USA (2009).

- Related academic journals: ***International Journal of Cosmetic Science, Journal of Cosmetic Science, Molecules, Antioxidants, Cosmetics, Processes, Journal of Cosmetic Dermatology***