2nd GSW INTERNATIONAL SCHOOL
Kavala, 9 - 29/2/2024

Syllabus

Course: Towards a Green and Sustainable World
This course is proposed by Sorbonne University to the students to International Hellenic University

Dates: February 9th-February 27th 2024
Feb 9-12 (noon)/2024: preparation (asynchronous, autonomous, online)
Feb 12 (afternoon)-16/2024: 1st part (synchronous, onsite)
Feb 17-27/2024: 2d part (asynchronous, online)

Introduction
Todays' environmental challenges are extremely high and of worldwide concern. Indeed, plastic wastes are found in the Mariana Trench as well as at the top of Mount Everest. More generally, the future of our planet is in danger because of the use of toxic products, suspended particles in air, the global warming and of course, the depletion of oil reserves. This module about "Green Chemistry" aims to enable the acquisition of a collective awareness that participants will be able to value as citizens and future chemistry scientists.

Learning outcomes
- Grasp the 12 principles of green chemistry, to put them into practice in the laboratory and in the daily life.
- Develop a critical thinking about the present state of affairs and of the benefits brought by green chemistry.
- Communicate and exchange ideas dealing with green or sustainable remediation
- Explain and argue about chemical experiments

Evaluation activities
- Online quizzes
- Reports on a given thematic based on autonomous searches and exchanges with the teaching staff
- Oral presentation, power point, in front of the peers (group outcome)

Teaching team
Ali Abou-Hassan ali.abou_hassan@sorbonne-universite.fr
Franck Launay franck.launay@sorbonne-universite.fr
Giovanni Poli giovanni.poli@sorbonne-universite.fr

Course Structure
This module is divided in two parts: **Green Label I** & **Green Label II**.
All the activities are proposed in an online format through our Moodle platform.

Equivalence
The global module (**Green Label I + II**) is equivalent to **3 ECTS**. At International Hellenic University

this module is recognised as extra-curriculum activities.
Engagement time: ***Green Label I*** *(around 20 hours) &* ***Green Label II*** *(around 40 hours)*

Proposed activities in Green Label I, 1 ECTS (ASYNCHRONOUS, ONLINE)

Feb 9-12/2024 (noon) + Feb 17-27/2024

This first teaching unit (UE) aims at enabling students to acquire knowledge about green chemistry concepts and sustainability through self-learning modules comprising online videos and matching quizzes.
In this teaching unit, students are introduced to: a) green chemistry: its principles and its indicators; b) some environmental issues in the field of sustainable development.

Learning activities

- Reading and watching autonomously the recommended didactical content: learning clips & articles
- Answering quizzes to self-assess the understanding of the presented concepts
- Online interaction and discussion through the course's forum

Teaching modalities

Asynchronous and autonomous follow-up with two online synchronous 30 minutes sessions

Assessment policy

The successful completion of this teaching unit involves:

- Viewing and answering the quiz introducing green chemistry. This part represents 50% of the final mark and comprises 10 questions (duration: 20 min, 3 attempts per question, the average of the 3 marks constitutes the overall score). **Feb 9-12/2024 (noon)**
- Viewing a set of videos covering different topics and answering the corresponding quizzes. This part represents 50% of the final mark and comprises 10 questions (duration: 20 min, 3 attempts per question, the average of the 3 marks constitutes the overall score). **Feb 17-27/2024**

Proposed activities in Green Label II, 2 ECTS (SYNCHRONOUS, ONSITE)

Feb 12 (afternoon)-16/2024

This second teaching unit (UE) aims at enabling students to diagnose problematic situations and to suggest remedial measures through case studies. The topics covered include: a) The calculation of different types of indicators, advanced « green metrics »; b) Catalysis, green nanomaterials, carbon dioxide recovery, substitution of oil for biomass.

Learning activities

The students will:

- attend a conference emphasizing the importance of issues raised by green chemistry,
- become familiar with the main indicators introduced by green chemistry,
- analyze three practical situations that will be presented to them during introductory seminars and in videos displaying filmed laboratory experiments,
- develop further reflections on one of the situations, suggesting remedial measures (moving toward greener and more sustainable solutions), or developing further the topic. The work will be returned in the form of a visual recording.

Teaching modalities

Most of the activities will be carried out in working groups.

Assessment Policy

The successful completion of this teaching unit involves:

- Study of the different topics and evaluation of their understanding (50% of the grade)
- Creating a presentation describing a selected topic, accompanied by constructive suggestions for improvements (50% of the grade)

February 12rd – February 16th 2024, Synchronous week

Monday 12/2/2024	**15h:** Welcome to the synchronous week, formation of the groups **15h15- 16h45** Prof. Franck Launay, Tutorial about green chemistry indicators			
Tuesday 13/2/2024	**9h30-11h** Prof. Giovanni Poli, **Introduction to biomass** **11h-12h30** Prof. Franck Launay, **Catalysis for CO_2 valorization** **14h-15h30** Prof. Ali Abou Hassan, **Green Nanomaterials**			
Wednesday 14/2/2024	**9h30 – 12h30**	**Team 1** & **1'** (Biomass) Initial meeting (9h30-10h) Autonomous work Final meeting at 12h	**Team 2** & **2'** **(**CO_2) Initial meeting (9h30-10h) Autonomous work Final meeting at 12h	**Team 3 & 3'**(Nano) Initial meeting (9h30-10h) Autonomous work Final meeting at 12h
	14h30 – 17h30	**Team 1** & **1'** (Nano) Initial meeting (14h30-15h) Autonomous work Final meeting at 17h	**Team 2** & **2'** (Biomass) Initial meeting (14h30-15h) Autonomous work Final meeting at 17h	**Team 3 & 3'** (CO_2) Initial meeting (14h30-15h) Autonomous work Final meeting at 17h
Thursday 15/2/2024	**9h30 – 12h30**	**Team 1** & **1'** (CO_2) Initial meeting (9h30-10h) Autonomous work Final meeting at 12h	**Team 2** & **2'** (Nano) Initial meeting (9h30-10h) Autonomous work Final meeting at 12h	**Team 3 & 3'** (Biomass) Initial meeting (9h30-10h) Autonomous work Final meeting at 12h
	12h30 – 13h00	**Selection of the topics for the presentation**		
	14h30 – 18h	**Autonomous work on the presentation**		
Friday 16/2/2024	**9h30 – 12h30**	**Autonomous work on the presentation**		
	14h30 – 17h30	**Oral presentation**		