



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Didattica e metodologie didattiche e laboratoriali della Chimica organica e della biochimica

2324-A34-FIA34004

Title

Teaching and laboratory methodologies of organic chemistry and biochemistry - Module A

Teacher(s)

Prof. A. Abbotto
Prof. A. Papagni
Prof. N. Manfredi
Dr. O. Bettucci

Language

Italian

Short description

The general objectives of the course are to:

Analyze the teaching of Organic Chemistry in secondary school, starting with the analysis of common texts used in secondary schools and compare the content with the curricula that students then choosing chemical disciplines will

find in the first three years of university.

To provide teaching tools of knowledge, scientific language and appropriate laboratory methodologies for teaching organic chemistry.

To provide a historical approach to the great chemists of the last two centuries (from the eighteenth century to the present day) in order to frame, particularly from the perspective of organic chemistry, the development of chemical thought and knowledge, theories and models, which students then find in school texts. The goal is to present theories and models in the context of their historical development in order to increase in the student the ability to interpret phenomena without these being considered immutable truths but the culmination of elaborations, insights and knowledge of the state of the art in each era. In particular, a number of chemists who contributed strongly to the development of Chemistry, and in particular Organic Chemistry, will be considered, including Lavoisier, Pasteur, Cannizzaro, Kekulé, Nobel, van 't Hoff, Ciamician, Blodgett, and Shirakawa. Special emphasis will be given to the historical role of women chemists in the development of modern organic chemistry.

To provide aspects of Organic Chemistry related to non-notionistic approaches but related to important scientific and social aspects including: a) use of Organic Chemistry in energy; 2) use of Organic Chemistry in sustainable society; 3) use of Organic Chemistry in the synthesis of molecules with particular structures.

To provide elements of laboratory experiments through viewing, discussion and analysis by groups of typical Organic Chemistry experiments, with learning of the main laboratory techniques from the point of view of teaching in secondary school.

Prerequisites

Basic knowledge of Chemistry will be considered acquired and bibliographic directions provided for possible supplementation or review of content.

Instructional Materials

Teaching materials (texts, lecture transparencies, literature articles) will be indicated and provided during the course of lectures.

Texts

Giuseppe Valitutti, Patrizia Amadio, Marco Falasca, Chimica: concetti e modelli. Chimica organica. Terza edizione Alessandro Abbotto, "Il genio quotidiano. Raccolta di racconti del quotidiano di grandi scienziati chimici e delle loro scoperte, Edises, 2023.

Alessandro Abbotto, Vito Capriati, "La nuova chimica del XXI secolo. Rivoluzione verde e transizione ecologica", Edizioni Dedalo, 2023.

CFU / Hours

4 CFU / 24 hours

Teaching period

august - december 2024

Sustainable Development Goals

QUALITY EDUCATION

