

COASTAL AND MARINE BIOLOGY AND ECOLOGY (LM51)

(Lecce - Università degli Studi)

Insegnamento ENVIRONMENTAL CHEMISTRY

GenCod A005071

Insegnamento ENVIRONMENTAL CHEMISTRY

Insegnamento in inglese ENVIRONMENTAL CHEMISTRY

Settore disciplinare CHIM/12

Corso di studi di riferimento COASTAL AND MARINE BIOLOGY AND ECOLOGY

Tipo corso di studi Laurea Magistrale

Crediti 6.0

Ripartizione oraria Ore Attività frontale: 52.0

Per immatricolati nel 2017/2018

Erogato nel 2018/2019

Anno di corso 2

Lingua INGLESE

Percorso PERCORSO COMUNE

Docente Alessandra GENGA

Sede Lecce

Periodo Primo Semestre

Tipo esame Orale

Valutazione Voto Finale

Orario dell'insegnamento

<https://easyroom.unisalento.it/Orario>

BREVE DESCRIZIONE DEL CORSO

Introduction to environmental chemistry. Chemical physical properties of the water molecule; structure of water molecule, ipolimnio, thermoclinio, epilimnio. Stratification of waters, density as function of salinity, temperature and pressure. Dissolved oxygen in waters, Oxygen Demand: biological and chemical decomposition of organic matter in water. Sulfur compounds in natural waters, acid mine drainage. pE scale. pE-pH diagram of Fe and of N. CO₂ dissolved in waters. CO₂-carbonate system. Water in equilibrium with solid calcium carbonate: first and second approximation. Water in equilibrium with both CaCO₃ and atmospheric CO₂. Chemical composition of natural water. Alkaline index. Hardness index. Composition of the Major Components of Seawater: The Concept of Salinity, Chlorinity. Composition and Stoichiometry of Average Seawater. Causes of the Major Components Not Being Conservative: examples (estuaries, anoxic basin, evaporation in isolated basin, admixture with brines, precipitation and dissolution, submarine vulcanism, vent, interstitial waters, exchange between atmosphere and sea). Phosphate, soaps. Nitrate, perchlorate, organic solvent in water.

Introduction to the atmosphere. Stratification of the atmosphere. Stratospheric chemistry: the ozone layer. Absorption of light by molecules. Creation of ozone in the stratosphere. Destruction of stratospheric ozone. Catalytic processes of ozone destruction. The ozone holes. CFC. CFC replacement.

The chemistry of ground level air pollution. The chemical fate of trace gases in air. Urban ozone: the photochemical smog process Nitrogen oxide. Sulfur dioxide and hydrogen sulfide sources and abatement. Particulate air pollution.

Introduction to soil. Minerals. Cation and anion exchange.

Organic molecules of environmental interest. Pesticides. Dioxine. PAH. Furan.

Determination of ammonia in water sample. Determination of major ions in water sample.

PROGRAMMA ESTESO

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