

**Course: Ecotoxicity and Environmental Analysis**

Lecturer: A. Gotti, J. Grimalt

Date: 4-5/05/2017; 5-9/6/2017

Classroom: 1-15 @IUSS

**Course schedule**

Week	Date	Lecture hours From ..... To .....	Tutorial hours From ..... To .....	Subject	Tot h
	4/5/2017	2 p.m. – 4 p.m.	4 p.m. - 5 p.m.	Modeling environmental fate of chemicals	3
	5/5/2017	11 a.m. – 1 p.m.	2 p.m. - 3 p.m.	Modeling uptake and internal dose in biota	3
1	5/6/2017	10 a.m. – 1 p.m.	2 p.m. - 4 p.m.	Ecotoxicity principles	5
	6/6/2017	9 a.m. – 1 p.m.	2 p.m. - 3 p.m.	Ecotoxicity effects	5
	7/6/2017	9 a.m. – 1 p.m.	2 p.m. - 3 p.m.	Environmental quality assessment	5
	8/6/2017	10 a.m. – 1 p.m.	2 p.m. - 4 p.m.	Sampling and analytical methods for environmental analysis	5
	9/6/2017	11 a.m. – 1 p.m.	2 p.m. - 4 p.m.	National and international environmental monitoring programs	4

**Brief Contents Description and Course Syllabus:**

- 1) Environmental fate of chemicals Exposure routes and pathways
  - 2) Multi-media environmental modeling of chemicals
  - 3) Exposure modeling
  - 4) Internal dose modeling in biota
  
- 1) Ecotoxicity principles
  - a) Ecosystems, ecological interactions, species
  - b) Persistence, biokinetics, partitioning, degradation.
  - c) Effects on metabolism, specimen, population, ecosystem
- 2) Ecotoxicity effects
  - a) Estrogenic effects, organism feminization.
  - b) Oxidative effects, aryl hydrocarbon receptor ligands
  - c) Thyroid disrupters
  - d) Embriotoxicity
  - e) Acute toxicity, chronic toxicity, dose response, in vivo ecotoxicity models.
- 3) Environmental quality assessment
  - a) Pollutant types: volatile compounds, persistent organic pollutants, organophosphorous compounds, organonitrogen compounds, metals
  - b) Environmental compartments: Air, Water, Soil, Food
  - c) Regulatory limits, safety limits.
- 4) Sampling and analytical methods for environmental analysis
  - a) Sampling methods, monitoring study design
  - b) Liquid Chromatography/mass spectrometry, Gas chromatography/mass spectrometry, ICP-MS
  - c) Sentinel organisms
- 5) National and international environmental monitoring programs
  - a) Regulatory monitoring for water, air, food items
  - b) National and international environmental monitoring studies