



# UNIVERSITÀ DEGLI STUDI DELL'AQUILA

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## DIPARTIMENTO DI SCIENZE FISICHE E CHIMICHE

Laurea Magistrale Interateneo ATMOSPHERIC SCIENCE AND TECHNOLOGY

SYLLABUS – ATMOSPHERIC CHEMISTRY

INSTRUCTOR: PROF. Giovanni Meloni

CFU: 6

### **Historical overview of the Chemistry of the Atmosphere**

#### **The Atmosphere**

Emissions of pollutants (NO<sub>x</sub>, VOC, CO, S compounds, TSP). Meteorology (Lapse rate, potential temperature, temperature inversions). Removal of pollutants from the atmosphere. Effects of pollutants on visibility and materials).

#### **Fundamentals of Spectroscopy and Photochemistry**

Basic principles.

#### **Photochemistry of Important Atmospheric Species**

#### **Kinetics and Atmospheric Chemistry**

Fundamentals. Arrhenius expression. Collision theory. Transition state theory. Experimental techniques (fast-flow, flash photolysis).

#### **Atmospheric Chemistry of Organic Mixtures**

#### **Atmospheric Chemistry of Nitrogen Compounds**

#### **Acid Deposition in the Troposphere**

#### **Aerosols**

#### **Analytical Methods in Atmospheric Chemistry**

#### **Halogenated Organics**

Suggested textbook: Chemistry of the Upper and Lower Atmosphere, Barbara J. Finlayson-Pitts, James N. Pitts, Jr., Academic Press, 2000