

COURSE CONTENT

Course Code & Title	:	CM4015 Introduction to Atmospheric Chemistry
Academic Units	:	3 AU
Pre-requisite	:	CM2011, CM2062, CM3062 or by permission
Course Description	:	

CM4015 Introduction to Atmospheric Chemistry

[Lectures: 39; Pre-requisite: none; Academic Units: 3]

Learning Objectives

Students will be able to explain basic concepts about atmospheric chemistry and transport.

Content

The atmosphere contains numerous chemical species, those react each other. The course will cover chemistry and transport of those species. Impacts of atmospheric chemistry on global climate and local environments will also be discussed.

Course Outline

S/N	Topic	Lecture Hours
1	Introduction to atmospheric chemistry	1.5
2	Introduction of units in atmospheric chemistry	1.5
3	Atmospheric pressure and transport	3
4	Simple models in atmospheric chemistry	3
5	Atmospheric trace species and geochemical cycles	4.5
6	Basic physical chemistry for atmospheric chemistry	3
7	Atmospheric radiation and photochemistry	3
8	Gas phase chemistry in the stratosphere	3
9	Gas phase chemistry in the troposphere	4.5
10	Aqueous phase reactions in the atmosphere	3
11	Atmospheric aerosol particles	4.5
12	Atmospheric chemistry and the global climate	3
13	Atmospheric chemistry and air quality	1.5

Learning Outcomes

Students will be able to:

- explain basic chemistry and physics of the atmosphere
- develop simple models for atmospheric chemistry
- explain roles of atmospheric trace gas species and aerosol particles in global climate and air quality

Student Assessment

Students will be assessed by a final 2-hour written examination (60%) and continuous assessment (40%).

Textbooks/References

Atmospheric Chemistry and Physics: From Air Pollution to Climate Change Paperback, J. H. Seinfeld and, S. N. Pandis, Wiley-Interscience, 2006.

Chemistry of the Upper and Lower Atmosphere: Theory, Experiments, and Applications, B. J. Finlayson-Pitts, J. N. Pitts Jr. Academic Press, 1999.

Introduction to Atmospheric Chemistry, D. Jacob Princeton University Press, 1999