Atmospheric Chemistry						
Type of Module Advanced Module			**Module Code** AM-METCHEM			
Identification Number	**Workload**	**Credit Points**	**Term**	**Offered Every**	**Start**	**Duration**
MN-GM-METCHEM	180 h	6 CP	1. – 3. Semester	WiSe	Winter Term Only	1 Semester

1	**Course Types**	**Contact Time**	**Private Study**	**Planned Group Size**
	a) Lectures	30 h	60 h	15
	b) Exercise	30 h	60 h	

2 Aims of the module and acquired skills

- Comprehension of how physical/chemical processes affect composition and changes of the atmosphere
- Knowledge of several trace substance cycles
- Comprehension of spatial and temporal gradients of trace substances
- Application of reaction mechanisms on the decomposition of trace substances
- Acquired skills are computer practice, general comprehension of systems, critical assessment and discussion of scientific work

3 Contents of the module

- Chemical elementary reactions
- Chemical composition of the atmosphere
- Simple reaction systems
- Chemical and atmospheric persistence
- Photochemistry
- Biogenic and anthropogenic emissions
- Atmospheric deposition processes
- Climate efficiency of trace gases
- Aerosol chemistry and physics
- Atmospheric distribution of trace substances

- Trace substance cycles of CO, methane, hydrocarbons, sulfur compounds, nitric oxides
- Chemistry of the hydroxyl radical
- Complex ways of decomposition of trace substances
- Photochemistry of the decomposition of trace substances, radical cycles
- Formation of ozone in the troposphere
- Trace substance balance, troposphere, stratosphere
- Stratospheric ozone chemistry
- Climate development

4 Teaching Methods

Lectures and tutorials

5	**Prerequisites (for the Module)** None
6	**Type of Examination** Written examination (graded).
7	**Credits Awarded** Successful participation in the exercises (50 % of the possible points have to be obtained) and passing of the examination.
8	**Compatibility with other Curricula** • Other modules of equal value can be admitted and announced by the examination board after agreement. • Suitable as an elective course for mathematics, physics and geoscience students
9	**Proportion of Final Grade** 6/114
10	**Module Coordinator** A. Wahner, T. Mentel
11	**Further Information**