

Course code	Course name	Study credits	Study period	Language of instruction	Mode of teaching
Compulsory courses for all study tracks					
ATM345	Atmospheric science seminar for Master's students	5 cr	1.-4. period	English	includes both contact and distance teaching
ATM301	Atmospheric and Earth Sciences Today	5 cr	1. period	English	contact teaching
Select one of these two:					
ATM386	Climate.now (2 cr)	2 cr	all year round	English	Independent study, no teaching
ATM302	Climate.now (5 cr)	5 cr	2. period	English	distance teaching (time-bound)
Select one of these three:					
ATM303	Project course in atmospheric sciences	3 - 5 cr	1.-4. period	English	Independent study, no teaching
ATM380	Solutions.now	5 cr	4. period	English	distance teaching (time-bound)
ATM384	Integrating art and science	5 cr	May intensive	English	contact teaching (field course)
Optional courses for all study tracks (max 30 credits)					
ATM397	Forests and Climate Change	2 cr	1.-4. period	English	online teaching (not time-bound)
ATM396	Application of AI/ML techniques in Atmospheric Science	5 cr	11-15 August 2025 in Lahti	English	contact teaching
ATM378	Sustainable.now	5 cr	1. period	English	distance teaching (time-bound)
ATM389	Living with changing climate	5 cr	2. period	English	distance teaching (time-bound)
ATM398	Climate University for Virtual Exchanges (Cluvex)	1 cr	autumn 2025, intensive period	English	distance teaching (time-bound)
ATM373	Leadership for Sustainable Change	5 cr	3. period	English	distance teaching (time-bound)
ATM379	SystemsChange.now	5 cr	3. period	English	distance teaching (time-bound)
ATM382	ClimateComms.now	2 cr	3. period	English	distance teaching (time-bound)
ATM377	Introduction to Earth System Modelling	5 cr	4. period	English	contact teaching
ATM404	Environmental and Climate Regulation in the EU	5 cr	4. period	English	includes both contact and distance teaching
ATM398	Climate University for Virtual Exchanges (Cluvex)	1 cr	spring 2026, intensive period	English	distance teaching (time-bound)
Data Science and Machine Learning courses (are included in the max 30 cr of common optional courses)					
ATM5001	Statistical Analysis of Environmental Field Measurements	5 cr	1. period	English	contact teaching
DATA11001	Introduction to Data Science	5 cr	1. period	English	contact teaching
ATM309	Analysis of atmosphere-surface interactions and feedbacks	5 cr	6.-17.10.2025	English	contact teaching
ATM308	Statistical Tools for Climate and Atmospheric Science	5 cr	2. period	English	includes both contact and distance teaching (<i>mainly for students in EnCHIL programme</i>)
LSI35002	Bayesian Data Analysis	5 cr	2. period	English	contact teaching
DATA11002	Introduction to Machine Learning (alternative to ATM4171)	5 cr	2. period	English	contact teaching
DATA12001	Advanced Course in Machine Learning	5 cr	4. period	English	contact teaching
DATA20046	Neural Networks and Deep Learning	5 cr	4. period	English	contact teaching
ATM4171	Introduction to Machine Learning for Atmospheric and Earth System Research	5 cr	4.5.-31.5.2026	English	contact teaching
Study track in Aerosol Physics					
ATM381	Physical and chemical characterization of charged molecules and clusters at atmospheric pressure	5 cr	1. period	English	contact teaching
ATM394	Advanced aerosol chemistry	5 cr	1. period	English	includes both contact and distance teaching
ATM357	Atmospheric Radiation	5 cr	1. period	English	contact teaching
ATM304	Aerosol Physics II	5 cr	2. period	English	contact teaching
ATM306	Basics of atmospheric chemistry	5 cr	2. period	English	contact teaching
ATM318	Aerosol measurement techniques	5 cr	2. period	English	contact teaching
MATR305	Nanophysics and Nanochemistry	5 cr	2. period	English	contact teaching
ATM354	Cloud Physics	5 cr	2. period	English	contact teaching
ATM307	Atmospheric and aerosol chemistry	5 cr	3. period	English	contact teaching
ATM326	Health Effects of Fine Particles	5 cr	3. period	English	distance teaching (time-bound)
ATM368	Aerosol Optics	5 cr	3. period	English	contact teaching
ATM371	Laboratory course in aerosol physics	5 cr	3. period	English	contact teaching
ATM325	Satellite remote sensing methods in aerosol science	5 cr	4. period	English	contact teaching
ATM319	Atmospheric observations of aerosols, clouds and trace gases	5 cr	May intensive	English	includes both contact and distance teaching
ATM311	Simulations of Formation of Molecular Clusters	5 cr	not offered 25-26	English	contact teaching
ATM312	Aerosol Modelling	5 cr	not offered 25-26	English	contact teaching
ATM313	Chemical Transport modelling I	5 cr	not offered 25-26	English	contact teaching
ATM314	Chemical transport modelling II	5 cr	not offered 25-26	English	contact teaching
ATM320	Mass Spectrometry in Atmospheric Sciences and Environmental a	5 cr	not offered 25-26	English	contact teaching
ATM327	Fine Particles in Occupational Environments	5 cr	not offered 25-26	English	distance teaching (time-bound)
ATM358	Atmospheric photochemistry and reaction kinetics	5 cr	not offered 25-26	English	contact teaching

ATM372	Atmosphere of planets from our solar system and beyond	5 cr	not offered 25-26	English	contact teaching
Study track in Biosphere-atmosphere cycles					
FOR-218	Basics of biometeorology	3-5 cr	1. period	English	contact teaching
FOR-228	Forest ecosystem biogeochemistry	5 cr	1. period	English	contact teaching
ATM309	Analysis of atmosphere-surface interactions and feedbacks	5 cr	6.-17.10.2025	English	contact teaching
FOR-211	Tree ecophysiology	5 cr	2. period	English	contact teaching
FOR-286	Simulation of forest growth	5 cr	2. period	English	contact teaching
FOR-275	Soils and climate change	5 cr	3. period	English	contact teaching
FOR-285	Climate change mitigation and adaptation in forestry	5 cr	3. period	English	contact teaching
AGRI-413	Advanced Soil Science	5 cr	3. period	English	includes both contact and distance teaching
ECGS-039	Arctic climate change	5 cr	3. period	English	contact teaching
ATM359	Eddy covariance intensive course	5 cr	3. period	English	contact teaching
ATM328	Global biogeochemical cycles	5 cr	3. period	English	contact teaching
FOR-217	Forests and peatlands as modifiers of atmospheric composition	5 cr	4. period	English	contact teaching
ECGS-011	Advanced aquatic and sediment biogeochemistry	5 cr	4. period	English	includes both contact and distance teaching
ATM321	Field Course in Micrometeorology and Hydrology	5 cr	not offered 25-26	English	contact teaching
AGRI-411	Soil Hydrology	5 cr	not offered 25-26	English	contact teaching
FOR-284	Methods in ecophysiology	5 cr	not offered 25-26	English	contact teaching
Study track in Geophysics of the hydrosphere					
ME-204	Geoinformatics I	5 cr	all year round	English	online teaching (not time-bound)
ATM342	Frozen Ground	5 cr	1. period	English	contact teaching
ATM337	Descriptive Oceanography	5 cr	2. period	English	contact teaching
ME-203	Geoinformatikka I	5 cr	2. period	Finnish	contact teaching
GEOG-360	Remote sensing of chryosphere (can be added in advanced studies)	5 cr	2. period	English	contact teaching
ATM338	Surface Water Waves	5 cr	2. period	English or Fi	contact teaching
ATM336	Dynamic Oceanography	5 cr	3. period	English	contact teaching
ATM344	Global Hydrology	5 cr	3. period	English	contact teaching
ATM340	Coastal Oceanography	5 cr	4. period	English	contact teaching
ATM346	Physics of lakes and rivers	5 cr	4. period	English	contact teaching
ECGS-011	Advanced aquatic and sediment biogeochemistry	5 cr	4. period	English	includes both contact and distance teaching
MAST32005	<i>Spatial modelling and Bayesian inference</i>	5 cr	1.-4. period?	English	self study
GEOM2034	Quantitative hydrogeology and flow modelling	5 cr	not offered 25-26	English	contact teaching
ATM321	Field Course in Micrometeorology and Hydrology	5 cr	not offered 25-26	English	contact teaching
ATM310	Time Series Analysis in Geosciences	5 cr	not offered 25-26	English, Finn	includes both contact and distance teaching
ATM333	Turbulence Theory	5 cr	not offered 25-26	English	contact teaching
ATM334	Measurement Methods in Hydrospheric Geophysics	5 cr	not offered 25-26	English	contact teaching
ATM335	Geophysics of Snow and Ice	5 cr	not offered 25-26	English	contact teaching
ATM339	Oceanography of the Baltic Sea	5 cr	not offered 25-26	English	contact teaching
ATM341	Polar Oceans and Ice	5 cr	not offered 25-26	English	contact teaching
ATM343	Glaciology	5 cr	not offered 25-26	English	contact teaching
Study track in Atmospheric chemistry and analysis					
KEM411	Chemicals and legislation	5 cr	1.-4. period	English	online teaching (not time-bound)
ATM394	Advanced aerosol chemistry	5 cr	1. period	English	includes both contact and distance teaching
KEM331	Separation techniques	5 cr	1. period	English	contact teaching
KEM333	Analytical chemistry laboratory work, p 1	5 cr	1. period	English	contact teaching
KEM346	Experimental methods in molecular science 1	5 cr	1. period	English	contact teaching
ATM306	Basics of atmospheric chemistry	5 cr	2. period	English	contact teaching
KEM332	Sampling and sample preparation	5 cr	2. period	English	contact teaching
ATM307	Atmospheric and aerosol chemistry	5 cr	3. period	English	contact teaching
KEM334	Mass spectrometry	5 cr	3. period	English	contact teaching
KEM336	NMR spectroscopy 1	3 - 5 cr	3. period	English	contact teaching
KEM356	Electromigration techniques	5 cr	3. period	English	contact teaching
KEM344	Reaction kinetics	5 cr	4. period	English	contact teaching
KEM333	Analytical chemistry laboratory work, p 4	5 cr	4. period	English	contact teaching
ATM320	Mass Spectrometry in Atmospheric Sciences and Environmental a	5 cr	not offered 25-26	English	contact teaching
ATM358	Atmospheric photochemistry and reaction kinetics	5 cr	not offered 25-26	English	contact teaching
KEM345	Molecular properties	5 cr	not offered 25-26	English	contact teaching
KEM335	Portable analytical instruments and sensors	5 cr	not offered 25-26	English	contact teaching
KEM342	Molecular modelling	5 cr	not offered 25-26	English	contact teaching
KEM347	Quantum chemistry and spectroscopy	5 cr	not offered 25-26	English	contact teaching
KEM365	Laser spectroscopy	5 cr	not offered 25-26	English	contact teaching
KEM369	Molecular electronic structure	5 cr	not offered 25-26	English	contact teaching
KEM371	Combustion chemistry	5 cr	not offered 25-26	English	contact teaching
KEM372	Laser spectroscopy instrumentation	5 cr	not offered 25-26	English	contact teaching
KEM378	Molecular symmetry and group theory	5 cr	not offered 25-26	English	contact teaching

KEM381	Programming projects in molecular modelling	5 cr	not offered 25-26	English	contact teaching
Study track in Remote sensing					
ME-204	Geoinformatics I	5 cr	all year round	English	online teaching (not time-bound)
ATM357	Atmospheric Radiation	5 cr	1. period	English	contact teaching
GEOG-G302	Introduction to Remote Sensing of Environment	5 cr	1. period	English	contact teaching
FOR-260	Advanced 3D remote sensing of forests	5 cr	1. period	Finnish	contact teaching
ATM322	Meteorological observation systems	5 cr	2. period	English	contact teaching
GEOG-360	Remote sensing of chryosphere (can be added in advanced studies)	5 cr	2. period	English	contact teaching
ME-230	Geoinformatics 2	5 cr	3. period	Finnish	contact teaching
ATM323	Advanced Course in Radar Meteorology	5 cr	3. period	English	contact teaching
GEOG-324	Hyperspectral remote sensing	5 cr	3. period	English	contact teaching
ATM324	Laboratory Course in Radar Meteorology	5 cr	4. period	English	contact teaching
ATM325	Satellite remote sensing methods in aerosol science	5 cr	4. period	English	contact teaching
PAP314	Introduction to light scattering	5 cr	4. period	Eng, Fi	contact teaching
ME-232	Remote sensing 1	5 cr	4. period	Finnish	contact teaching
FOR-258	GIS analysis and modelling	5 cr	4. period	Finnish	contact teaching
GEOG-322	Advanced remote sensing of environment	5 cr	4. period	English	contact teaching
MAST32005	Spatial modelling and Bayesian inference	5 cr	1.-4. period?	English	self study
ME-234	Counting methods in forest sciences	5 cr	not offered 25-26	English	contact teaching
ATM310	Time Series Analysis in Geosciences	5 cr	not offered 25-26	Eng, Fin	includes both contact and distance teaching
Study track in Meteorology					
Obligatory courses of the study track					
ATM348	Dynamics of Atmospheric Flow Structures I	5 cr	1. period	English	contact teaching
ATM357	Atmospheric Radiation	5 cr	1. period	English	contact teaching
ATM349	Dynamics of Atmospheric Flow Structures II	5 cr	2. period	English	contact teaching
ATM322	Meteorological observation systems	5 cr	2. period	English	contact teaching
ATM352	Synoptic Meteorology I	5 cr	2. period	English	contact teaching
ATM354	Cloud Physics	5 cr	2. period	English	contact teaching
ATM351	Mesometeorology	5 cr	3. period	English	contact teaching
ATM355	Atmospheric General Circulation I	5 cr	3. period	English	contact teaching
ATM315	Numerical Meteorology I	5 cr	3. period	English	contact teaching
ATM347	Boundary Layer Physics I	5 cr	4. period	English	contact teaching
Optional courses of the study track					
ATM306	Basics of atmospheric chemistry	5 cr	2. period	English	contact teaching
ATM332	Terrestrial water, carbon and nitrogen cycles	5 cr	2. period	English	contact teaching
ATM323	Advanced Course in Radar Meteorology	5 cr	3. period	English	contact teaching
ATM359	Eddy covariance intensive course	5 cr	3. period	English	contact teaching
ATM328	Global biogeochemical cycles	5 cr	3. period	English	contact teaching
ATM317	Laboratory Course in Numerical Meteorology	5 cr	3.-4. period	English	contact teaching
PAP303	Statistical Inverse Methods	5 cr	3.-4. period	Eng, Fi	contact teaching
ATM316	Numerical Meteorology II	5 cr	4. period	English	contact teaching
ATM324	Laboratory Course in Radar Meteorology	5 cr	4. period	English	contact teaching
ATM325	Satellite remote sensing methods in aerosol science	5 cr	4. period	English	contact teaching
PAP314	Introduction to light scattering	5 cr	4. period	Eng, Fi	contact teaching
ATM356	Convective Weather Systems and Climate	5 cr	4. period	English	contact teaching
FYS2074	Atmospheric Greenhouse Effect, Climate Changes and Impacts	5 cr	4. period	Finnish	contact teaching
ATM395	Numerical Meteorology III	5 cr	all year round	English	no lecturing, independent studying
ATM321	Field Course in Micrometeorology and Hydrology	5 cr	not offered 25-26	English	contact teaching
ATM310	Time Series Analysis in Geosciences	5 cr	not offered 25-26	Eng, Fin	includes both contact and distance teaching
ATM331	Theory of Micrometeorological Flux Measurements	5 cr	not offered 25-26	English	contact teaching
ATM333	Turbulence Theory	5 cr	not offered 25-26	English	contact teaching
ATM353	Synoptic Meteorology II	5 cr	not offered 25-26	English	contact teaching
ATM362	Stratospheric Dynamics and Chemistry	5 cr	not offered	English	contact teaching
ATM364	Laboratory Course in Synoptic Meteorology	5 cr	not offered	English	contact teaching
Other ATM-courses					
ATM383	Leadership for sustainable change	2 cr	all year round	English	no lecturing, independent studying
ATM385	Introduction to sustainability	3 cr	all year round	English	no lecturing, independent studying
ATM387	Political economy of Sustainability	2 cr	all year round	English	no lecturing, independent studying
ATM388	Sustainability and the Arts	1 cr	all year round	English	no lecturing, independent studying
ATM405	Una Europa Virtual Exchanges for Sustainability (UnaVex)	1 cr	autumn 2025, intensive period	English	distance teaching (time-bound)
ATM405	Una Europa Virtual Exchanges for Sustainability (UnaVex)	1 cr	spring 2026, intensive period	English	distance teaching (time-bound)
ATM360	First Steps in Biosphere-Atmosphere Modelling	5 cr	not offered 25-26	English	contact teaching
ATM402	Oceanography of the Baltic Sea II	5 cr	organized on-demand	English	contact teaching
ATM4131	Time Series Analysis in Geosciences II	5 cr	not offered 25-26	English, Finn	includes both contact and distance teaching