Academic Planning Worksheet for B.S. in Atmospheric and Climate Science: Chemistry and Air Quality Option

Prerequisites: Math & Physics (30 credits total)
Besides **English composition**, these courses (or their equivalent) must be completed prior to registering for the first course in the Core ATMOS sequence. Students interested in majoring in Atmospheric and Climate Science should start taking these courses as soon as possible.
MATH 124 Calculus with Analytic Geometry I (5cr, AWSpS)
MATH 125 Calculus with Analytic Geometry II (5cr, AWSpS)
MATH 126 Calculus with Analytic Geometry III (5cr, AWSpS)
PHYS 121 Mechanics (5cr, AWSpS)
PHYS 122 Electromagnetism (5cr, AWSpS)
PHYS 123 Waves, Light, and Heat (5cr, AWSpS)

Statistics Requirement (4-5 credits total)
One of these courses should be completed as soon as possible, as it is a prerequisite for upper-division ATMOS coursework. Both courses have prerequisites. **STAT 390 is recommended for the Data Science Option.**
Q SCI 381 Introduction to Probability and Statistics (5cr, AWSp) **or**
STAT 390 Statistical Methods in Engineering and Science (4cr, AWSpS)

Core – Atmospheric and Climate Science (ATMOS) (23 credits total)
These courses must be completed **in the order** listed below, beginning with ATMOS 301 in Autumn Quarter.
ATMOS 220 Exploring the Atmospheric and Climate Science (1cr)
ATMOS 301 Introduction to Atmospheric Sciences (5cr, Aut)
ATMOS 340 Introduction to Thermodynamics and Cloud Processes (3cr, Win)
ATMOS 370 Atmospheric Structure and Analysis (5cr, Win)
ATMOS 321 The Science of Climate (3cr, Spr)
ATMOS 341 Atmospheric Radiative Transfer (3cr, Spr)
ATMOS 431 Boundary-Layer Meteorology (3cr, Aut)

ATMOSPHERIC CHEMISTRY AND AIR QUALITY OPTION COURSEWORK (32-36 CREDITS TOTAL)

Courses listed below are required to complete a BS in Atmospheric and Climate Science in the Chemistry and Air Quality Option and are in addition to the Atmospheric and Climate Science core coursework and UW College of Environment general education requirements.

Chemistry (Required; 15 credits total)
These courses (or their equivalent*) should be completed as soon as possible, as they are prerequisites for upper-division ATMOS coursework. Some of these courses may have prerequisites.
CHEM 142 General Chemistry (5cr, AWSpS)
CHEM 152 General Chemistry (5cr, AWSpS)
CHEM 162 General Chemistry (5cr, AWSpS)

**For transfer students – some WA-state community colleges offer equivalents to the courses listed above. Consult your institutional adviser or the UW Equivalency Guide for more information.*

Atmospheric and Climate Science Courses (Required; 8 credits total)
These courses must be completed in the order listed below. These courses have prerequisites.
ATMOS 458 Air Pollution Chemistry (4cr, Aut)
ATMOS 480 Air-Quality Modeling (4cr, Spr)

Programming Courses (Required; 3-4 credits total)
ATMOS 310 Programming for Atmospheric Data Analysis (3cr, Aut) **or**
CSE 160 Data Programming (4cr, AWSpS)

Additional Courses (Required; 6-9 credits total)
Students must complete **a minimum of two courses** from the following list. Most courses have prerequisites.
AMATH 301 Beginning Scientific Computing (4cr, AWSpS)
AMATH 351 Introduction to Differential Equations and Applications (3cr, AWSpS)
AMATH 352 Applied Linear Algebra and Numerical Analysis (3cr, AWSpS)
Any ATMOS course at the 300-level or above (may not include any ATMOS courses already required as part of the core or track coursework)
ATMOS 452 Forecasting & Advanced Synoptic Meteorology (5cr, Sp)
ATMOS 508 Geochemical Cycles (4cr)
ATMOS 564 Atmospheric Aerosol and Multiphase Atmospheric Chemistry (3cr)
CHEM 223 Organic Chemistry – Short Program (4cr, AS)
CHEM 224 Organic Chemistry – Short Program (4cr, WS)
CHEM 312 Inorganic Chemistry (3cr, AWS)
CHEM 321 Quantitative Analysis (5cr, AWSpS)
CHEM 426 Instrumental Analysis (3cr, W)
CHEM E 341 Energy and Environment (3cr, A)
CHEM E 468 Air-Pollution Control Equipment Design (3cr)
MATH 208 Matrix Algebra with Applications (4cr, AWSpS)
MATH 224 Advanced Multivariable Calculus (4cr, AWSpS)

Four-Year Plan for Students Starting as First-Year Students (Chemistry Option)

Year 1 (First Year)

Autumn Quarter	Winter Quarter	Spring Quarter
☐ MATH 124 (5) Calculus with Analytic Geometry I	☐ MATH 125 (5) Calculus with Analytic Geometry II	☐ MATH 126 (5) Calculus with Analytic Geometry III
	☐ PHYS 121 (5) Mechanics	☐ PHYS 122 (5) Electromagnetism

Year 2 (Sophomore Year)

Autumn Quarter	Winter Quarter	Spring Quarter
☐ PHYS 123 (5) Waves, Light, and Heat	☐ CHEM 152 (5) General Chemistry	☐ CHEM 162 (5) General Chemistry
☐ CHEM 142 (5) General Chemistry	☐ ATMOS 220 (1) Exploring the Atmospheric And Climate Science	☐ *STAT 390 (4) Statistical Methods in Engineering and Science* **or** ☐ *Q SCI 381 (5) Introduction to Probability and Statistics*

Year 3 (Junior Year)

Autumn Quarter	Winter Quarter	Spring Quarter
☐ ATMOS 301 (5) Introduction to Atmospheric Sciences	☐ ATMOS 340 (3) Introduction to Thermodynamics and Cloud Processes	☐ ATMOS 321 (3) The Science of Climate
☐ *ATMOS 310 (3) Programming for Atmospheric Data Analysis* ***or*** ☐ *CSE 160 (4) Data Programming*	☐ ATMOS 370 (5) Atmospheric Structure and Analysis	☐ ATMOS 341 (3) Atmospheric Radiative Transfer

Year 4 (Senior Year)

Autumn Quarter	Winter Quarter	Spring Quarter
☐ ATMOS 431 (3) Boundary-Layer Meteorology	☐ Elective 1 (3-5)	☐ Elective 2 (3-5)
☐ ATMOS 458 (4) Air Pollution Chemistry		☐ ATMOS 480 (4) Air-Quality Modeling