Academic Planning Worksheet for B.S. in Atmospheric Sciences: 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 ATM S sequence. Students interested in majoring in Atmospheric Sciences 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 ATM S 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 Sciences (ATM S) (23 credits total)
These courses must be completed in the order listed below, beginning with ATM S 301 in Autumn Quarter.
ATM S 220 Exploring the Atmospheric Sciences (1cr)
ATM S 301 Introduction to Atmospheric Sciences (5cr, Aut)
ATM S 340 Introduction to Thermodynamics and Cloud Processes (3cr, Win)
ATM S 370 Atmospheric Structure and Analysis (5cr, Win)
ATM S 321 The Science of Climate (3cr, Spr)
ATM S 341 Atmospheric Radiative Transfer (3cr, Spr)
ATM S 431 Boundary-Layer Meteorology (3cr, Aut)

ATMOSHERIC CHEMISTRY AND AIR QUALITY OPTION COURSEWORK (32-36 CREDITS TOTAL)
Courses listed below are required to complete a BS in Atmospheric Sciences in the Chemistry and Air Quality Option and are in addition to Atmospheric Sciences 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 ATM S 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 Sciences Courses (Required; 7 credits total)
These courses must be completed in the order listed below. These courses have prerequisites.
ATM S 458 Air Pollution Chemistry (4cr, Aut)
ATM S 480 Air-Quality Modeling (3cr, Spr)

Programming Courses (Required; 3-4 credits total)
ATM S 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 ATM S course at the 300-level or above (may not include any ATM S courses already required as part of the core or track coursework)
ATM S 452 Forecasting & Advanced Synoptic Meteorology (5cr, Sp)
ATM S 508 Geochemical Cycles (4cr)
ATM S 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 (3cr, AWSpS)
MATH 224 Advanced Multivariable Calculus (3cr, AWSpS)
# Four-Year Plan for Students Starting as Freshmen (Chemistry Option)

## Year 1 (Freshman Year)

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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</thead>
<tbody>
<tr>
<td>☐ MATH 124 (5) Calculus with Analytic Geometry I</td>
<td>☐ MATH 125 (5) Calculus with Analytic Geometry II</td>
<td>☐ MATH 126 (5) Calculus with Analytic Geometry III</td>
</tr>
<tr>
<td>☐ CHEM 142 (5) General Chemistry</td>
<td>☐ CHEM 152 (5) General Chemistry</td>
<td>☐ CHEM 162 (5) General Chemistry</td>
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</tbody>
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## Year 2 (Sophomore Year)

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
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<th>Spring Quarter</th>
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</thead>
<tbody>
<tr>
<td>☐ ATM S 220 (1) Exploring the Atmospheric Sciences</td>
<td>☐ STAT 390 (4) Statistical Methods in Engineering and Science, or ☐ Q SCI 381 (5) Introduction to Probability and Statistics</td>
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## Year 3 (Junior Year)

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>☐ ATM S 301 (5) Introduction to Atmospheric Sciences</td>
<td>☐ ATM S 340 (3) Introduction to Thermodynamics and Cloud Processes</td>
<td>☐ ATM S 321 (3) The Science of Climate</td>
</tr>
<tr>
<td>☐ ATM S 310 (3) Programming for Atmospheric Data Analysis, or ☐ CSE 160 (4) Data Programming</td>
<td>☐ ATM S 370 (5) Atmospheric Structure and Analysis</td>
<td>☐ ATM S 341 (3) Atmospheric Radiative Transfer</td>
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## Year 4 (Senior Year)

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<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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</thead>
<tbody>
<tr>
<td>☐ ATM S 431 (3) Boundary-Layer Meteorology</td>
<td>☐ Elective 1 (3-5)</td>
<td>☐ Elective 2 (3-5)</td>
</tr>
<tr>
<td>☐ ATM S 458 (4) Air Pollution Chemistry</td>
<td>☐ ATM S 480 (3) Air-Quality Modeling</td>
<td></td>
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</tbody>
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