Academic Planning Worksheet for B.S. in Atmospheric Sciences: Climate 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 pre-requisite 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; AWSpS) 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)

**CLIMATE OPTION COURSEWORK (31-40 CREDITS TOTAL)**

Courses listed below are required to complete a BS in Atmospheric Sciences in the Climate Option and are in addition to Atmos Sci core coursework and UW College of Environment general education requirements.

Required Course List (22-25 credits total)

- **ATM S 358 Fundamentals of Atmospheric Chemistry** (3cr, Spr)
- **ATM S 380 Weather and Climate Prediction** (3cr, Win)
- **ATM S 350 Ecological Climatology** (3cr, Aut)
- **ATM S 487 Fundamentals of Climate Change** (3cr, Aut)
- **ATM S 310 Programming for Atmospheric Data Analysis** (3cr, Aut) or **CSE 160 Data Programming** (4cr, AWSpS)
- **ESS 431 Principles of Glaciology** (4cr) or **ESS 433 Environmental Change in the Glacial Ages** (5cr, Spr)
  *Please take one of these courses as soon as they are available since not every course is offered in every academic year.
- **OCEAN 423 Ocean Circulation and Climate** (3cr, Spr) or **OCEAN 450 Climatic Extremes** (4cr, Win)
  *Please take one of these courses as soon as they are available since not every course is offered in every academic year.

Climate Electives (choose three)

- **AMATH 351 Differential Equations** (3cr, AWSpS)
- **AMATH 352 Applied Linear Algebra** (3cr, AWSpS)
- **AMATH 353 Partial Differential Equations** (3cr, SpS)
- **ATM S 441 and 442 Atmospheric Motions I/II (counts as two)** (8cr, AW)
- **ATM S 451 Instruments and Observations** (4cr, Win)
- **ATM S 452 Weather Forecasting and Advanced Synoptic Meteorology** (5cr, Spr)
- **ATM S 588 The Global Carbon Cycle and Climate** (5cr)
- **ENVIR 384 Global Environmental Politics** (5cr)
- **ENVIR 416 Ethics and Climate Change** (5cr)
- **ENVIR 418 Communications and the Environment** (5cr)
- **MATH 208 Matrix Algebra with Applications** (3cr, AWSpS)
- **MATH 224 Advanced Multivariable Calculus** (3cr, AWSpS)
- **OCEAN 200 Introduction to Oceanography** (3cr, Spr)
- **OCEAN 210 Integrative Oceans** (4cr, Aut & Spr)
## Four-Year Plan for Students Starting as Freshmen (Climate Option)

### Year 1 (Freshman Year)

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<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>
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<tr>
<td>☐ PHYS 121 (5) Mechanics</td>
<td>☐ PHYS 122 (5) Electromagnetism</td>
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### Year 2 (Sophomore Year)

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<tr>
<th>Autumn Quarter</th>
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<th>Spring Quarter</th>
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| ☐ PHYS 123 (5) Waves, Light, and Heat | ☐ ATM S 220 (1) Exploring the Atmospheric Sciences | ☐ Q SCI 381 (5) Introduction to Probability and Statistics,  
or ☐ STAT 390 (4) Statistical Methods in Engineering and Science |
| ☐ ATM S 310 (3) Programming for Atmospheric Data Analysis, or ☐ CSE 160 (4) Data Programming | | |

### Year 3 (Junior Year)

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<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>☐ Elective 1</td>
<td>☐ ATM S 370 (5) Atmospheric Structure and Analysis</td>
<td>☐ ATM S 341 (3) Atmospheric Radiative Transfer</td>
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<td>☐ ATM S 358 (3) Fundamentals of Atmospheric Chemistry</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 350 (3) Ecological Climatology</td>
<td>☐ ATM S 380 (3) Weather and Climate Prediction</td>
<td>☐ Elective 3</td>
</tr>
</tbody>
</table>
| ☐ ATM S 487 (3) Fundamentals of Climate Change | ☐ Elective 2 | ☐ ESS 431 Principles of Glaciology,  
or ☐ ESS 433 (4-5) Environmental Change in the Glacial Ages |
| ☐ ATM S 431 (3) Boundary-Layer Meteorology | ☐ OCEAN 450 (3-4) Climatic Extremes (if not planning to take OCEAN 423) | ☐ OCEAN 423 Ocean Circulation and Climate (if not taken OCEAN 450) |