Climate Change and Air Quality (Old)

Why study climate change and air quality?
The climate change and air quality track aims to train students in the physical and biological processes associated with global climate change and air quality, and to provide them with the necessary policy background to be able to understand the implications of global warming and climate change. Courses cover foundations of climatology and atmospheric science, air quality, hydrology, interaction between vegetation and the atmosphere, biogeography and evolution, biomes, and environmental policy making. This track would prepare students for a broad range of environmental and policy positions in the public and private sectors, such as the California Air Resource Board, U.S. Environmental Protection Agency, various county Air Quality Management Districts, environmental consulting firms, and graduate school in a broad range of environmental topics.

<table>
<thead>
<tr>
<th>Preparatory Subject Matter</th>
<th>Quarter(s) Offered</th>
<th>Units</th>
<th>Completed</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written and Oral Expression</td>
<td>Upper Division Writing</td>
<td>I, II, III, IV</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CMN 1, 3V, 3Y, or DRA 10</td>
<td>Communication</td>
<td>I, II, III, IV</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Core Subject Matter Requirements

NOTE: Students graduating with this major are required to attain at least a C average (2.0 GPA) in all courses taken at the university in Depth Subject Matter and pass all coursework. See requirements of the College of Agriculture & Environmental Science in the UC Davis General Catalog.

<table>
<thead>
<tr>
<th>Depth Subject Matter</th>
<th>Prerequisites</th>
<th>Qtr(s)</th>
<th>Units</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global Environment</strong></td>
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<tr>
<td>ESM 120</td>
<td>Global Environmental Interactions</td>
<td>One college-level chemistry and biology course</td>
<td>II</td>
<td>4</td>
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<tr>
<td><strong>Ecology</strong> (Choose one of the following)</td>
<td></td>
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<tr>
<td>ESP 100</td>
<td>General Ecology</td>
<td>BIS 2A-C; MAT 16A-B or 17A-B or 21A-B; STA 13 recommended</td>
<td>I, II, IV</td>
<td>4</td>
</tr>
<tr>
<td>EVE 101</td>
<td>Introduction to Ecology</td>
<td>BIS 2A-C; MAT 16A-B or 17A-B or 21A-B; or equivalent</td>
<td>I, II, III, IV</td>
<td>4</td>
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<tr>
<td><strong>Policy</strong></td>
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<tr>
<td>ESP 162</td>
<td>Environmental Policy</td>
<td>ECN 1A or ECN 1AV or ECN 1AY</td>
<td>II</td>
<td>4</td>
</tr>
<tr>
<td><strong>Statistics</strong> (Choose one of the following – Statistics 100 recommended)</td>
<td></td>
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<tr>
<td>STA 13</td>
<td>Elementary Statistics</td>
<td>Two years of high school algebra or equivalent in college</td>
<td>I, II, III, IV</td>
<td>4</td>
</tr>
<tr>
<td>STA 100</td>
<td>Applied Statistics for Biological Sciences</td>
<td>MAT 16B or 17B or 21B with a C- or better</td>
<td>I, II, III, IV</td>
<td>4</td>
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<tr>
<td><strong>Environmental Monitoring</strong> (Choose one of the following)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ATM 124</td>
<td>Meteorological Instruments &amp; Observations</td>
<td>ATM 60</td>
<td>I</td>
<td>3</td>
</tr>
<tr>
<td>ESM 108</td>
<td>Environmental Monitoring</td>
<td>ESP 100 or EVE 101 or SSC 100 or WFC 100 or equivalent</td>
<td>III</td>
<td>3</td>
</tr>
<tr>
<td>ESP 151L</td>
<td>Limnology Lab</td>
<td>ESP 151 (can be concurrent)</td>
<td>III</td>
<td>3</td>
</tr>
<tr>
<td>ESP 179</td>
<td>Environmental Impact Assessment</td>
<td>ESP 1 or the equivalent</td>
<td>II, IV</td>
<td>4</td>
</tr>
<tr>
<td><strong>Environmental Data Science</strong> (Choose one of the following)</td>
<td></td>
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<tr>
<td>ABT/LDA 150</td>
<td>Introduction to GIS</td>
<td>None</td>
<td>I, II, III</td>
<td>4</td>
</tr>
<tr>
<td>ESP 106</td>
<td>Environmental Data Science</td>
<td>STA 13 or 32 or 100 (can be concurrent)</td>
<td>II</td>
<td>4</td>
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<tr>
<td><strong>Internship</strong></td>
<td></td>
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<tr>
<td>ESM/ESP 92/192 Internship</td>
<td>Upper division standing, permission of instructor</td>
<td>Variable unit – must take at least 3 units of internship</td>
<td>I, II, III, IV</td>
<td>3</td>
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<tr>
<td></td>
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<td>May complete internship in a different area with prior approval (e.g.: PLS, SSC, ATM)</td>
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<tr>
<td><strong>Capstone</strong></td>
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<tr>
<td>ESM 195</td>
<td>Integrating Env Science &amp; Management</td>
<td>Senior standing in ESM</td>
<td>III</td>
<td>2</td>
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<tr>
<td><strong>Honors Thesis (Optional)</strong></td>
<td></td>
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<tr>
<td>ESM 194H</td>
<td>Senior Honors Thesis</td>
<td>Senior standing, Overall GPA of 3.50 or higher; Consent of the lead faculty advisor</td>
<td>I, II, III, IV</td>
<td>2-6</td>
</tr>
</tbody>
</table>

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**Course is offered in even years only (2024, 2026, etc.)
# Climate Change and Air Quality

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Prerequisites</th>
<th>Qtr(s)</th>
<th>Units</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM 60  Introduction to Atmospheric Science</td>
<td>MAT 16A or 21A; PHY 7A or 9A</td>
<td>I</td>
<td>4</td>
<td></td>
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<tr>
<td>Select three climate science and meteorology courses</td>
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<tr>
<td>ATM 115** Hydroclimatology</td>
<td>ATM 60</td>
<td>III</td>
<td>3</td>
<td></td>
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<tr>
<td>ATM 116 Modern Climate Change</td>
<td>None</td>
<td>I</td>
<td>3</td>
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<tr>
<td>ATM 133 Biometeorology</td>
<td>MAT 16B; one course in a biological discipline or consent of instructor</td>
<td>I</td>
<td>4</td>
<td></td>
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<tr>
<td>ATM 160** Intro to Atmospheric Chemistry</td>
<td>CHE 2B</td>
<td>II</td>
<td>4</td>
<td></td>
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<tr>
<td>ESM 131 Air as a Resource (not offered winter 24)</td>
<td>CHE 10 or CHE 2A; CHE 2B</td>
<td>II</td>
<td>3</td>
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<tr>
<td>GEL 108 Paleoclimates</td>
<td>GEL 1 or 50 or 116N; CHE 2A</td>
<td>III</td>
<td>3</td>
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<tr>
<td>Select two water and soil processes courses</td>
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<tr>
<td>ESM 100 Principles of Hydrologic Science</td>
<td>CHE 2B; MAT 16B; PHY 7A or 9A</td>
<td>I</td>
<td>4</td>
<td></td>
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<tr>
<td>ESM 121 Water Science &amp; Management</td>
<td>PHY 10 or GEL 1</td>
<td>III</td>
<td>3</td>
<td></td>
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<tr>
<td>ESP/GEL 116N Oceanography</td>
<td>GEL 1 or 2 or 16 or 50</td>
<td>II</td>
<td>3</td>
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<tr>
<td>HYD 143** Echohydrology</td>
<td>HYD 10 or 141 or ESP 1 or ESM 100 or ESM 108 or ESM 120 or GEL 1 or 50 or SSC 100</td>
<td>II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SSC 100 Principles of Soil Science</td>
<td>College-level course in each of CHE, PHY, BIS, and GEL recommended</td>
<td>I</td>
<td>5</td>
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<tr>
<td>Select one biological processes course</td>
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<tr>
<td>ESM/PLS 144 Trees &amp; Forests</td>
<td>PLS 2 or BIS 2C</td>
<td>I</td>
<td>4</td>
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<tr>
<td>ESP 124 Marine and Coastal Field Ecology</td>
<td>Acceptance into the Bodega Marine Lab summer program</td>
<td>IV</td>
<td>3</td>
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</tr>
<tr>
<td>ESP/GEL 150C Biological Oceanography</td>
<td>Acceptance into the Bodega Marine Lab summer program</td>
<td>IV</td>
<td>4</td>
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<tr>
<td>ESP 151 Limnology</td>
<td>BIS 2A and 2B; BIS 2C and ESP 100 or EVE 101 recommended</td>
<td>III</td>
<td>4</td>
<td></td>
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<tr>
<td>ESP 155 Wetland Ecology</td>
<td>BIS 2A or equivalent; ESP 100 or EVE 101 recommended</td>
<td>III</td>
<td>4</td>
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<tr>
<td>EVE 115* Marine Ecology</td>
<td>ESP 100 or EVE 101 or BIS 2B, or consent of instructor</td>
<td>II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PLS 130* Grassland Ecology</td>
<td>PLS 2 or BIS 2B or BIS 2C or consent of instructor, upper div standing</td>
<td>II</td>
<td>3</td>
<td></td>
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<tr>
<td>Select one ecosystems or biogeography course</td>
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<tr>
<td>ENH 160 Restoration Ecology</td>
<td>ESP 100 or 121 or 155 or EVE 101 or 117 or 119 or PLS 162 or 130</td>
<td>III</td>
<td>4</td>
<td></td>
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<tr>
<td>EVE 147 Biogeography</td>
<td>BIS 2B</td>
<td>IV</td>
<td>4</td>
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<tr>
<td>EVE 149 Evolution of Ecological Systems</td>
<td>ESP 100 or EVE 101 or equivalent; EVE 100 or equivalent</td>
<td>IV</td>
<td>4</td>
<td></td>
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<tr>
<td>PLS 162 Urban Ecology (not offered winter 24)</td>
<td>PLB 117 or ESP 100 or EVE 101 or EVE 120 or PLS 163</td>
<td>II</td>
<td>3</td>
<td></td>
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<tr>
<td>Select two environmental policy courses</td>
<td></td>
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<tr>
<td>ESP/ECI 163** Energy &amp; Env Aspects of Transportation</td>
<td>Upper division standing in environmental studies</td>
<td>I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ESP 165 Climate Policy</td>
<td>ECN 1A or 1AV or ESP 1 or consent of instructor</td>
<td>I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ESP 167** Energy Policy</td>
<td>ECN 1A; MAT 16B or 17B or 21B or consent of instructor</td>
<td>II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ESP 171 Urban &amp; Regional Planning</td>
<td>ESP 1 or ESP 161 or ESP 179 recommended</td>
<td>III, IV</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ESP 172 Public Lands Management</td>
<td>ECN 1A and POL 1 recommended</td>
<td>I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ESP 174 Environmental Justice Policy &amp; Practice</td>
<td>ESP 1 or the equivalent recommended</td>
<td>III</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ESP 179 Environmental Impact Assessment</td>
<td>ESP 1 or the equivalent</td>
<td>II, IV</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SOC 160 Sociology of the Environment</td>
<td>SOC 1 or 2 or 3 recommended</td>
<td>I</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

I = fall quarter, II = winter quarter, III = spring quarter, IV = summer session

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