The analytic sciences concentration is designed to produce environmental scientists with a strong background in chemistry preparing them to find solutions to problems associated with chemical pollutants that are being released into the air, earth and water environments of our planet.

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required core courses:</strong></td>
<td></td>
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<tr>
<td>(Note that in the case of cross-listed courses, Environmental Science majors must enroll in the ENVN section)</td>
<td></td>
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<tr>
<td>ENVN 2010</td>
<td>ENVIRONMENTAL PROBLEMS AND SOLUTIONS</td>
<td>1</td>
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<tr>
<td>BIOL 1330</td>
<td>ENVIRONMENTAL BIOLOGY</td>
<td>3</td>
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<tr>
<td>GEOL 1010</td>
<td>ENVIRONMENTAL GEOLOGY</td>
<td>3</td>
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<tr>
<td>GEOG 1050</td>
<td>HUMAN-ENVIRONMENT GEOGRAPHY</td>
<td>4</td>
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<tr>
<td>ENVN/GEOG 4820</td>
<td>INTRODUCTION TO ENVIRONMENTAL LAW &amp; REGULATIONS</td>
<td>3</td>
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<tr>
<td>ENVN/GEOL/BIOL 4610</td>
<td>ENVIRONMENTAL MONITORING AND ASSESSMENT</td>
<td>3</td>
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<tr>
<td>A minimum of 3 credit hours in ENVN 4800 must be completed</td>
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<tr>
<td>ENVN/BIOL 4800</td>
<td>INTERNSHIP ENVIRONMENTAL MANAGEMENT AND PLANNING</td>
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**Also required:**

- An approved course in statistics
- An approved GIS course

### Analytical Sciences Concentration requirements:

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 1180</td>
<td>GENERAL CHEMISTRY I</td>
<td>3</td>
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<tr>
<td>CHEM 1184</td>
<td>GENERAL CHEMISTRY I LABORATORY</td>
<td>1</td>
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<tr>
<td>CHEM 1190</td>
<td>GENERAL CHEMISTRY II</td>
<td>3</td>
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<tr>
<td>CHEM 1194</td>
<td>GENERAL CHEMISTRY II LABORATORY</td>
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Select one of the following organic chemistry sequences:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 2210 &amp; CHEM 2214</td>
<td>FUNDAMENTALS OF ORGANIC CHEMISTRY and FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY</td>
<td>5</td>
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<tr>
<td>CHEM 2250 &amp; CHEM 2274</td>
<td>ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LABORATORY</td>
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<tr>
<td>CHEM 2260</td>
<td>ORGANIC CHEMISTRY II</td>
<td>3</td>
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**Also Required:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 2400</td>
<td>QUANTITATIVE ANALYSIS</td>
<td>3</td>
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<tr>
<td>CHEM 2404</td>
<td>QUANTITATIVE ANALYSIS LAB</td>
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<tr>
<td>CHEM 2500</td>
<td>INTRODUCTION TO INORGANIC CHEMISTRY</td>
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<tr>
<td>CHEM 3650</td>
<td>FUNDAMENTALS OF BIOCHEMISTRY</td>
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<tr>
<td>CHEM 3654</td>
<td>FUNDAMENTALS OF BIOCHEMISTRY LABORATORY</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 3030</td>
<td>ENVIRONMENTAL CHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 4400</td>
<td>INSTRUMENTAL ANALYSIS</td>
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### CHEM 4404

INSTRUMENTAL ANALYSIS LABORATORY | 1 |

### Required cognate courses:

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<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 2440</td>
<td>THE BIOLOGY OF MICROORGANISMS</td>
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<tr>
<td>PHYS 2110</td>
<td>GENERAL PHYSICS I - CALCULUS LEVEL</td>
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<tr>
<td>PHYS 1154</td>
<td>GENERAL PHYSICS LABORATORY I</td>
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<tr>
<td>PHYS 2120</td>
<td>GENERAL PHYSICS-CALCULUS LEVEL</td>
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<tr>
<td>PHYS 1164</td>
<td>GENERAL PHYSICS LABORATORY II</td>
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**Plus a minimum 11 hours selected from the following:**

<table>
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<th>Credits</th>
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<tr>
<td>GEOL 1170</td>
<td>INTRODUCTION TO PHYSICAL GEOLOGY</td>
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<tr>
<td>GEOL 2600</td>
<td>GEHYDROLOGY</td>
<td>3</td>
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<tr>
<td>GEOL 2750 &amp; GEOL 2754</td>
<td>MINERALOGY and MINERALOGY LABORATORY</td>
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<td>GEOL 2760 &amp; GEOL 2764</td>
<td>IGNEOUS AND METAMORPHIC PETROLOGY and IGNEOUS AND METAMORPHIC PETROLOGY LABORATORY</td>
<td>4</td>
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<tr>
<td>GEOL 3300 &amp; GEOL 3310</td>
<td>STRUCTURAL GEOLOGY and STRUCTURAL GEOLOGY FIELD METHODS</td>
<td>4</td>
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<tr>
<td>GEOL 4540</td>
<td>GEOCHEMISTRY</td>
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<tr>
<td>GEOL/GEOG 4640</td>
<td>CRITICAL ZONE SCIENCE</td>
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<tr>
<td>GEOG 3510</td>
<td>METEOROLOGY</td>
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<td>GEOG 4010</td>
<td>CONSERVATION OF NATURAL RESOURCES</td>
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<td>GEOG 4100</td>
<td>BIOGEOGRAPHY</td>
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<td>GEOG 4260</td>
<td>PROCESS GEOMORPHOLOGY</td>
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<td>GEOG 4320</td>
<td>CLIMATOLOGY</td>
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<tr>
<td>GEOG 4330</td>
<td>SOIL GENESIS, MORPHOLOGY AND CLASSIFICATION</td>
<td>4</td>
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<tr>
<td>GEOG 4340</td>
<td>WATER RESOURCES</td>
<td>3</td>
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<tr>
<td>GEOG 4020</td>
<td>QUANTITATIVE ANALYSIS IN GEOGRAPHY</td>
<td>3</td>
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<tr>
<td>GEOG 4030</td>
<td>COMPUTER MAPPING AND VISUALIZATION</td>
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<tr>
<td>GEOG 4050</td>
<td>GEOGRAPHIC INFORMATION SYSTEMS I</td>
<td>4</td>
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<tr>
<td>GEOG 4630</td>
<td>ENVIRONMENTAL REMOTE SENSING</td>
<td>4</td>
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<tr>
<td>GEOG 4660</td>
<td>GEOGRAPHIC INFORMATION SYSTEMS II</td>
<td>4</td>
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<tr>
<td>BIOL 3020</td>
<td>MOLECULAR BIOLOGY OF THE CELL</td>
<td>3</td>
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<tr>
<td>BIOL 3340</td>
<td>ECOLOGY</td>
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<tr>
<td>BIOL 3530</td>
<td>FLORA OF THE GREAT PLAINS</td>
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<td>BIOL 4120</td>
<td>CONSERVATION BIOLOGY</td>
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<tr>
<td>ENVN 4410</td>
<td>WETLAND ECOLOGY AND MANAGEMENT</td>
<td>3</td>
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</table>

### Writing in the Discipline

All students are required to take a writing in the discipline course within their major. For the environmental science major with a concentration in analytical science, the writing in the discipline requirement can be fulfilled by completing: NSCI 3940