Advising contacts for ATM and CLM: Dr. Hanrahan  janel.hanrahan@northernvermont.edu  ASAC 302
Dr. Preston  aaron.preston@northernvermont.edu  ASAC 307
Dr. Shafer  jason.shafer@northernvermont.edu  ASAC 304

Contact for math placement exam:  Prof. Daley  daniel.daley@northernvermont.edu

Atmospheric Sciences B.S.
Suggested pathways for mathematics, science, and core atmospheric sciences courses (and credits) required for the ATM B.S. degree program:

4-YEAR PATHWAY

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MAT 1410 Pre-Calculus (4)</td>
<td>MAT 1531 Calculus I (4)</td>
</tr>
<tr>
<td></td>
<td>ATM 1211 Survey of Meteorology I (2)</td>
<td>ATM 1212 Survey of Meteorology II (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 1060 New Student Seminar (3)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>MAT 2532 Calculus II (4)</td>
<td>MAT 2543 Calculus III (4)</td>
</tr>
<tr>
<td></td>
<td>PHY 2061 Classic Physics I (4)</td>
<td>PHY 2062 Classic Physics II (4)</td>
</tr>
<tr>
<td></td>
<td>CIS 2101 Introduction to Unix (1)</td>
<td>ATM 2062 Survey of Climate and Statistics II (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 2061 Survey of Climate and Statistics I (2)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ATM 3030 Atmospheric Thermodynamics (3)</td>
<td>ATM 3321 Atmospheric Dynamics I (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 3140 Physical Meteorology (3)</td>
<td>ATM 3332 Analysis and Forecasting II (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 3331 Analysis and Forecasting (3)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>ATM 3322 Atmospheric Dynamics II (3)</td>
<td>ATM 3110 Remote Sensing (3)</td>
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<tr>
<td></td>
<td>ATM 4120 Mesoscale Meteorology (3)</td>
<td>ATM 4713 Capstone in Atmospheric Sciences II (2)</td>
</tr>
<tr>
<td></td>
<td>ATM 4712 Capstone in Atmospheric Sciences I (2)</td>
<td></td>
</tr>
</tbody>
</table>

3-YEAR PATHWAY

<table>
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<tr>
<th>Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MAT 2532 Calculus II (4)</td>
<td>MAT 2543 Calculus III (4)</td>
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<tr>
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<td>PHY 2061 Classic Physics I (4)</td>
<td>PHY 2062 Classic Physics II (4)</td>
</tr>
<tr>
<td></td>
<td>CIS 2101 Introduction to Unix (1)</td>
<td>ATM 1212 Survey of Meteorology II (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 1211 Survey of Meteorology I (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ATM 1060 New Student Seminar (3)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ATM 2061 Survey of Climate and Statistics I (2)</td>
<td>ATM 2062 Survey of Climate and Statistics II (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 3030 Atmospheric Thermodynamics (3)</td>
<td>ATM 3321 Atmospheric Dynamics I (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 3140 Physical Meteorology (3)</td>
<td>ATM 3332 Analysis and Forecasting II (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 3331 Analysis and Forecasting (3)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ATM 3322 Atmospheric Dynamics II (3)</td>
<td>ATM 3110 Remote Sensing (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 4120 Mesoscale Meteorology (3)</td>
<td>ATM 4713 Capstone in Atmospheric Sciences II (2)</td>
</tr>
<tr>
<td></td>
<td>ATM 4712 Capstone in Atmospheric Sciences I (2)</td>
<td></td>
</tr>
</tbody>
</table>

Note: These are suggested pathways only and will likely vary depending on student preparation. Each student must also take courses to fulfill at least one ATM concentration and all NVU degree requirements including at least 40 General Education foundation and elective credits.
ATMOSPHERIC SCIENCES CORE (62 Credits)

Mathematics and Science Courses: (21 Credits)
- MAT 1531 - Calculus I Credits: 4
- MAT 2532 - Calculus II Credits: 4
- MAT 2543 - Calculus III Credits: 4
- CIS 2101 - Introduction to Unix Credits: 1
- PHY 2061 - Classic Physics I Credits: 4
- PHY 2062 - Classic Physics II Credits: 4

Atmospheric Sciences Courses: (41 Credits)
- ATM 1060 - New Student Seminar in Atmospheric Sciences Credits: 3
- ATM 1211 - Survey of Meteorology I Credits: 2
- ATM 1212 - Survey of Meteorology II Credits: 3
- ATM-2061 - Survey of Climate and Statistics I Credits: 2
- ATM-2062 - Survey of Climate and Statistics II Credits: 3
- ATM 3030 - Atmospheric Thermodynamics Credits: 3
- ATM 3110 - Remote Sensing Credits: 3
- ATM 3140 - Physical Meteorology Credits: 3
- ATM 3321 - Atmospheric Dynamics I Credits: 3
- ATM 3322 - Atmospheric Dynamics II Credits: 3
- ATM 3331 - Analysis and Forecasting I Credits: 3
- ATM 3332 - Analysis and Forecasting II Credits: 3
- ATM 4120 - Mesoscale Meteorology Credits: 3
- ATM 4712 - Capstone in Atmospheric Sciences I Credits: 2
- ATM 4713 - Capstone in Atmospheric Sciences II Credits: 2

ATMOSPHERIC SCIENCES CONCENTRATIONS:

Climate Change (15 Credits)
- ATM 2210 - Geophysical and Human Interactions Credits: 3
- ATM 3050 - GIS Applications in Atmospheric Sciences Credits: 3
- ATM 4030 - Physical Climatology Credits: 3
- ATM 4110 - Numerical Weather Prediction Credits: 3
- ATM 4140 - Climate Change Dynamics Credits: 3

National Weather Service/Military (15 Credits)
- Take one computer science course – choose from:
  - CIS 2060 – Programming with Fortran Credits: 3
  - CIS 2141 – Programming Internet and Web Apps Part I Credits: 3
  - CIS 2271 – Java Programming Credits: 3
- ATM 3050 - GIS Applications in Atmospheric Sciences Credits: 3
- ATM 4030 - Physical Climatology Credits: 3
- ATM 4040 - Physical Hydrology Credits: 3
- MAT 3310 - Introduction to Differential Equations Credits: 3

Broadcasting (14 Credits)
- JOU 1125 – TV Production and Editing (EJA 1125 Visual Production I) Credits: 3
- JOU 1221 – Interpersonal Communication (EJA 1221 Person to Person) Credits: 3
- EJA/JOU 2843 - Practical Presentation I Credits: 3
- EJA/JOU 3222 - Practical Presentation II Credits: 3
- ATM 3270 - Television Weather Graphics Credits: 1
- ATM 4010 - Television Weathercasting Credits: 1
Graduate School (12-14 Credits)

- CHE 1031 - General Chemistry I Credits: 4
- MAT 3310 - Introduction to Differential Equations Credits: 3
- Choose a minimum of 2 credits from:
  - ATM 4140 – Climate Change Dynamics Credits: 3
  - CIS 2060 – Programming with Fortran Credits: 3
  - CIS 2279 – Introduction to Perl Programming Credits: 1
  - CIS 2290 – Introduction to Python Credits: 1
- Take one of the following:
  - MAT 3730 - Topics in Differential Equations Credits: 3
  - PHY 2063 - Classic Physics III Credits: 4
  - ATM 4110 – Numerical Weather Prediction Credits: 3

Private Industry (14-16 Credits)

- Take one business course - choose from:
  - BUS 2015 - Fundamentals of Management in Business Credits: 3
  - BUS 2230 - Principles of Marketing Credits: 3
  - BUS 3131 - Business Law I Credits: 3
  - ECO 2060 - Survey of Economics Credits: 4
- Choose a minimum of 2 credits from:
  - ATM 4140 - Climate Change Dynamics Credits: 3
  - CIS 2060 - Programming with FORTRAN Credits: 3
  - CIS 2141 - Programming Internet and Web Applications Part I Credits: 3
  - CIS 2279 - Introduction to Perl Programming Credits: 1
  - CIS 2290 - Introduction to Python Credits: 1
- Take one communications course - choose from:
  - EJA/JOU 1010 Introduction to Media Communication Credits: 3
  - JOU 1221 – Interpersonal Communication (EJA 1221 Person to Person) Credits: 3
  - ENG 1280 Fundamentals of Speaking Credits: 3
  - ENG 3010 Advanced Composition and Rhetoric Credits: 3
  - MRM-1080 Leadership and Small Group Dynamics Credits: 3
- Take one GIS course:
  - ATM 3050 - GIS Applications in Atmospheric Sciences Credits: 3
- Take one ATM elective - choose from:
  - ATM 2210 – Geophysical and Human Interactions Credits: 3
  - ATM 3170 - Weather Risk Assessment Credits: 3
  - ATM 3310 - Forecasting Applications Credits: 3
  - ATM 4030 - Physical Climatology Credits: 3
  - ATM 4040 - Physical Hydrology Credits: 3
  - ATM 4110 - Numerical Weather Prediction Credits: 3
  - ATM-4710 – Topics in Atmospheric Sciences Credits: 3

ATMOSPHERIC SCIENCES Minor:

- ATM 1211 - Survey of Meteorology I Credits: 2
- ATM 1212 - Survey of Meteorology II Credits: 3
- ATM-2061 – Survey of Climate and Statistics I Credits: 2
- CIS-2101 – Introduction to UNIX Credits: 1
- MAT 1531 - Calculus I Credits: 4

Electives: (6 Credits)

6 credits chosen from among the ATM, CIS, ENV, MAT, or PHY 2000 or higher courses. Note: ATM 4710 requires department permission.
Climate Change Science B.S.

A suggested pathway for science and core climate change science courses (and credits) required for the CLM B.S. degree:

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ATM 1211 Survey of Meteorology I (2)</td>
<td>ATM 1212 Survey of Meteorology II (3)</td>
</tr>
<tr>
<td></td>
<td>ATM 1060 New Student Seminar (3)</td>
<td>MAT 1410 Pre-Calculus (4)</td>
</tr>
<tr>
<td></td>
<td>ENV 1080 Intro to Environmental Science (4)</td>
<td>PHY 2031 Fundamental Physics I (4)</td>
</tr>
<tr>
<td>2</td>
<td>ATM 2061 Survey of Climate and Statistics I (2)</td>
<td>ATM 2062 Survey of Climate and Statistics II (3)</td>
</tr>
<tr>
<td></td>
<td>BIO 1211 Intro to Biology (4)</td>
<td>Communications elective course (3)</td>
</tr>
<tr>
<td>3</td>
<td>ATM 2210 Geophysical and Human Interactions (3)</td>
<td>ENV 2060 Energy, Environment, and Society (4)</td>
</tr>
<tr>
<td></td>
<td>CHE 1031 General Chemistry I (4)</td>
<td>GEY 1111 Intro to Geology I (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interdisciplinary elective course (3-4)</td>
</tr>
<tr>
<td>4</td>
<td>SCI 4900 Research in Science (2)</td>
<td>ATM 4030 Physical Climatology (3)</td>
</tr>
<tr>
<td></td>
<td>Interdisciplinary elective course (3-4)</td>
<td>SCI 4900 Research in Science (2)</td>
</tr>
<tr>
<td></td>
<td>Interdisciplinary elective course (3-4)</td>
<td>Interdisciplinary elective course (3-4)</td>
</tr>
</tbody>
</table>

Note: This is a suggested pathway only and will likely vary depending on student preparation. Each student must also take courses to fulfill all NVU degree requirements including at least 40 General Education foundation and elective credits.

CLIMATE CHANGE SCIENCE CORE (51 Credits)

ATM 1060 – New Student Seminar in ATM Credits: 3
ATM 1211 – Survey of Meteorology I Credits: 2
ATM 1212 – Survey of Meteorology II Credits: 3
ATM 2061 – Survey of Climate and Statistics I Credits: 2
ATM 2062 – Survey of Climate and Statistics II Credits: 3
ATM 2210 – Geophysical and Human Interactions Credits: 3
ATM 4030 – Physical Climatology Credits: 3
BIO 1211 – Introduction to Biology Credits: 4
CHE 1031 – General Chemistry I Credits: 4
ENV 1080 – Introduction to Environmental Science Credits: 4
ENV 2060 – Energy, Environment, and Society Credits: 4
GEY 1111 – Introduction to Geology I Credits: 4
MAT 1410 – Pre-Calculus Credits: 4
PHY 2031 – Fundamental Physics I Credits: 4
SCI 4900 – Research in Science Credits: 4

Choose one of the following communications courses (3 credits):

BUS 2080 – Organizational Behavior and Communication in Business Credits: 3
EJA 1221 – Person to Person Credits: 3
ENG 1280 – Fundamentals of Public Speaking Credits: 3
ENG 2085 – Public Relations, Advertising, and Marketing Credits: 3
ENG 3010 – Advanced Composition and Rhetoric Credits: 3
MRM 1080 – Leadership and Small Group Dynamics Credits: 3
MRM 3110 – Public Relations Credits: 3
Choose four of the following courses, with at least three courses at the 3000- or 4000-level (12 – 16 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT 3050</td>
<td>Culture, Ecology, and Health</td>
<td>3</td>
</tr>
<tr>
<td>ANT 3070</td>
<td>Ecotourism</td>
<td>3</td>
</tr>
<tr>
<td>ATM 3030</td>
<td>Atmospheric Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ATM 3170</td>
<td>Weather Risk Assessment</td>
<td>3</td>
</tr>
<tr>
<td>ATM 3050</td>
<td>GIS Apps in Atmospheric Sciences</td>
<td>3</td>
</tr>
<tr>
<td>BIO 4xxx</td>
<td>Environmental Challenges and Ecological Solutions</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(note: only 4 credits may count toward program requirements)</td>
<td></td>
</tr>
<tr>
<td>BIO 3280</td>
<td>Intro to Env toxicology</td>
<td>4</td>
</tr>
<tr>
<td>BIO 4040</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BUS 3240</td>
<td>Global business</td>
<td>3</td>
</tr>
<tr>
<td>CHE 2020</td>
<td>Intro to Environmental Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHE 3050</td>
<td>Environmental Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CRJ 2220</td>
<td>Environmental Justice</td>
<td>3</td>
</tr>
<tr>
<td>ECO 2060</td>
<td>Survey of Economics</td>
<td>4</td>
</tr>
<tr>
<td>ENG 3080</td>
<td>Strategic Media Communications</td>
<td>3</td>
</tr>
<tr>
<td>GEY 3110</td>
<td>Hydrogeology</td>
<td>4</td>
</tr>
<tr>
<td>GEY 4840</td>
<td>Geologic Evolution: Grand Canyon to Mt. Whitney - Intensive</td>
<td>4</td>
</tr>
<tr>
<td>PHI 2050</td>
<td>Nature, Science, and Technology</td>
<td>3</td>
</tr>
<tr>
<td>PHY 2025</td>
<td>Physics for the Environment</td>
<td>4</td>
</tr>
<tr>
<td>PHY 2032</td>
<td>Fundamental Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>
NVU Core Program curriculum (starting with the 2018-19 catalog)

First-Year Seminar (3 cr.)
Students entering with 15 or fewer credits take the First-Year Seminar.

Communicating in the World: Written Expression (6 cr.)
This two-course sequence focuses on clear and correct written expression, deepening one’s comprehension of texts, developing critical thinking and research skills, and the rhetorical method of argument. This area includes ENG 1071 & 1072 (Johnson); and ENG 1081 & 1082 (Lyndon).

Mathematics and Computing in the World (6 cr.)
Courses in this area focus on quantitative reasoning and other mathematical ideas and techniques. This area includes courses in MAT and CIS.

Natural and Physical Worlds (4 cr., lab-based science course)
Courses in this area address natural phenomena, empirical reasoning, and/or the place of scientific and mathematical knowledge, in contemporary societies. This area may include courses from AHS, ATM, BIO, CHE, ENV, GEY, PHY, SCI, and XSC, among others.

Being in the World: Society and Behavior (6 cr.)
Courses in this area focus on individual wellbeing and development; social life and institutions; and/or individual and social behavior and change. This area may include courses from BUS, AHS, CRJ, ECO, EDU, PSY, SOC, POS, and WAM, among others.

Creativity in the World: Art and Aesthetics (6 cr.)
Courses in this area focus on creative processes and techniques used in the creation of original works of art as a medium for human expression. They may also address the human experience of artistic and natural forms, the role of artistic expression in society, and aesthetic attitudes. This area may include courses from ART, ARH, DAN, ENG, MUS, and THA, among others.

Diversity in the World: History and Culture (6 cr.)
Courses in this area focus on how human and cultural diversity have shaped and continue to shape societies and the world across regions, within particular contexts, and throughout time. This area may include courses from ANT, ARH, ENG, HIS, HUM, INT, PHI, and WAM, among others.

Enriched Course in Climate Change; Sustainability; or Social Justice (3-4 cr.)
This course is specifically designated as a Climate Change Enriched, Sustainability Enriched, or Social Justice Enriched course.

Guidelines:
1. Students may repeat a designator up to three times, but note the following:
   a. Students take two ENG courses for Written Expression; they may take up to three additional ENG courses to fulfill other General Core requirements.
   b. Students take two MAT courses for Mathematics and Computing, or one MAT and one CIS course; they may take up to three additional MAT courses to fulfill other General Core requirements.
2. Any course may be counted towards the major program as appropriate.