### Atmospheric & Earth Science, BS
#### Earth System Science Concentration

**2022-2023 Catalog | catalog.uah.edu**

**Revised 4.27.2022**

<table>
<thead>
<tr>
<th>Complete</th>
<th>Course Number</th>
<th>Credits</th>
<th>Course Name</th>
<th>Prerequisites, Corequisites and/or Prerequisites with Concurrency</th>
<th>Semester Usually Offered</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>EH 101</td>
<td>3</td>
<td>College Writing I</td>
<td>Placement</td>
<td>FA/SP/SU</td>
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<tr>
<td></td>
<td>EH 102</td>
<td>3</td>
<td>College Writing II</td>
<td>EH 101 or EH 101S</td>
<td>FA/SP/SU</td>
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<td>EH 103</td>
<td>3</td>
<td>Accelerated College Writing</td>
<td>Placement</td>
<td>SP</td>
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<td>EH 105</td>
<td>3</td>
<td>Honors English Seminar</td>
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<td>Honors</td>
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#### Area II: Humanities and Fine Arts 12 credits
- 3 Fine Art
- 3 Literature
- 3 Non-Literature Humanity

#### Area III: Mathematics and Sciences 11-12 credits
- 3 Mathematics 3.4 credits
  - MA 120 (or MA 171/171S) 3-4 Math Professional Applications (or Calculus A) Placement or MA 107, 112 (or MA 113 or 115) FA/SP/SU

#### Natural Sciences (Lab) 8 credits
- 4 General Physics I + Lab (or General Physics w/ Calculus I +) Placement or MA 107, 112 (or MA 113 or 115) FA/SP/SU
- 4 General Physics II + Lab (or General Physics w/ Calculus II +) Placement or MA 107, 112 (or MA 113 or 115) FA/SP/SU

#### Area IV: History & Social & Behavioral Sciences 12 credits
- 3 History
- 3 World Geography
- 3 Human Geography

#### Area V: Pre-Professional

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<tr>
<td></td>
<td>FYE 101S</td>
<td>1</td>
<td>Charger Success - Science</td>
<td>REQUIRED</td>
<td>FA</td>
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<tr>
<td></td>
<td>MA 281</td>
<td>3</td>
<td>Math Professional Applications (or Calculus B)</td>
<td>MA 113, 115, or Placement (or MA 171)</td>
<td>FA/SP (FA/SP/SU)</td>
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#### Atmospheric & Earth Science Core 17 credits
- 4 Environmental Earth Science + Lab | FA/SP |
- 4 Weather & Climate Change + Lab | FA/SP |
- 2 Data Analysis Tools | AEA 103, 104, and CS 102+ w/conc | FA/SP |
- 3 Intro to Earth & Atmos Physics | AEA 103, 104, PH 101 or 111, MA 120 or 171 | FA/SP |
- 3 Class/Physical Causes Climate | AEA 103, 104, PH 101 or 111, MA 120 or 171 | SP |
- 1 Research & Prof Dev Capstone | Junior or Senior Standing (61+ credit hours) | FA/SP |

#### Earth System Science Concentration Electives Choose 17-18 credits: 6 credits must be 400+ level

AES 495 or AES 497 or AES 499 - Student may choose only one of these courses to count as a concentration elective.

AES 312, AES 321, AES 408, AES 409 - Each of these courses can be used to satisfy a concentration requirement or an elective requirement, but not both.

#### General Electives
Elective courses can be taken from any department and do not have to be taken in your major or minor.

**Total = 120+ credits to graduate**

36 of the 120 credits must be taken at 300-level or higher.
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#### Charger Foundations Choices

| I. Freshman Composition | Choose 1 | College Writing I & II (EH 101 + 102)  
|                         |         | Intensive Writing & Studio & Freshman Comp II (EH 101S + 101L & EH 102)  
|                         |         | Honors English Seminar (EH 105; equivalent to EH 101 & EH 102)  
|                         |         | Accelerated College Writing (EH 103: equivalent to EH 101 & EH 102)  
| II. Fine Arts          | Choose 1 | Ancient to Medieval Art (ARH 100)  
|                         |         | Renaissance to Modern Art (ARH 101)  
|                         |         | World Art (ARH 103)  
|                         |         | Introduction to Drawing (ARS 160)  
|                         |         | Intro to Film Studies (FMA 123)  
|                         |         | Intro to Music Literature (MU 100)  
|                         |         | Theatre Appreciation (TH 122)  
| II. Humanities (Literature) | Choose 1 | Readings Literature/Culture I (EH 207)  
|                         |         | Readings Literature/Culture II (EH 208)  
|                         |         | Honors Literature/Culture I (EH 209)  
|                         |         | Literature Without Borders (EH 241)  
| II. Humanities (Non-Literature) | Choose 1 | Ancient to Medieval Art (ARH 100)  
|                         |         | Renaissance to Modern Art (ARH 101)  
|                         |         | World Art (ARH 103)  
|                         |         | Introduction to Drawing (ARS 160)  
|                         |         | Honors Literature/Culture I (EH 209)  
|                         |         | Honors Literature/Culture II (EH 210)  
|                         |         | Literature Without Borders (EH 241)  
|                         |         | Intro to Philosophy (PHL 101)  
|                         |         | Intro to Ethics (PHL 102)  
|                         |         | Intro to Logic (PHL 103)  
|                         |         | Science, Tech & Human Values (PHL 150)  
|                         |         | Theatre Appreciation (TH 122)  
|                         |         | Intro to Women’s Studies (WGS 200)  
|                         |         | Foreign Language (WLC 101)  
|                         |         | International Cinema (WLC 204)  
| III. Mathematics       | Choose 1 | Math Professional Applications (MA 120)  
|                         |         | Calculus A (MA 171 or MA 171S)  
| III. Natural Sciences (Lab Sequence) | Choose 1 | Physics w/ Calculus I (PH 111/114) and Physics w/ Calculus II (PH 112/115)  
|                         |         | General Physics I (PH 101/101L) and General Physics II (PH 102/102L)  
| IV. History            | Choose 1 | World History I (HY 103)  
|                         |         | World History II (HY 104)  
|                         |         | United States to 1877 (HY 221)  
|                         |         | United States Since 1877 (HY 222)  
| IV. Social & Behavioral Sciences | Choose 2 | World Geography (AES 105)  
|                         |         | Human Geography (AES 110)  
|                         |         | Global systems & Cultures (GS 200)  
|                         |         | Macroeconomics (ECN 142)  
|                         |         | Microeconomics (ECN 143)  
|                         |         | American Gov’t (PSC 101)  
|                         |         | Politics & Foreign Govt (PSC 102)  
|                         |         | International Relations (PSC 260)  
|                         |         | General Psychology (PY 101)  
|                         |         | Life Span Development (PY 201)  
|                         |         | Intro to Sociology (SOC 100)  
|                         |         | Analysis of Social Problems (SOC 102)  
|                         |         | Intro to Criminology (SOC 103)  

**Students must take one literature and one history course.**

Students must also take either a second literature or history/social & behavioral science course to complete a sequence.

**Area II Sequence**  
Take a 2nd Literature **AND** History or Social & Behavioral Science

**OR**

**Area IV Sequence**  
Take either 2nd History **OR** 3rd Social & Behavioral Science **AND** Fine Arts or Non-Literature Humanities or Literature Humanities

### Area V. Choices

#### Biology or Chemistry
Choose 1  
Organisal Biology + Lab (BYS 120/121)  
Intro to Chemistry + Lab (CH 101/105)  
General Chemistry I + Lab (CH 121/1215)  

#### Computer Programming
Choose 1  
Intro to Computers & Programming (CS 100)  
Intro to C Programming (CS 102)  
Intro to Programming Using JAVA (CS 103)  
Intro to CS Using Python (CS 104)  

#### Applied Statistics
Choose 1  
Elements of Statistics Analysis (MA 281)  
Probability & Statistics (MA 385)  
Intro to Social Science Statistics (PSC 300)  
Psychological Statistics (PY 300)  
Statistics for Social Sciences (SOC 303)

#### Major Choices

| Concentration Electives | Choose 17 Credits (9 @ 400+)| AES 305 Hydrology*  
|                        |                             | AES 313 Geographic Information Systems  
|                        |                             | AES 321 Pollution Problems  
|                        |                             | AES 352 Synoptic Meteorology*  
|                        |                             | AES 370 Intro to Remote Sensing  
|                        |                             | AES 402 Natural Disasters  
|                        |                             | AES 408 Python for GIS  
|                        |                             | AES 409 Scientific Programming for Earth & Atmos  
|                        |                             | AES 410 Operational Weather Forecasting*  
|                        |                             | AES 414 Geospatial Applications  
|                        |                             | AES 420 Intro Atmospheric Chemistry & Air Pollution  
|                        |                             | AES 441 Atmospheric Thermodynamics & Cloud Physics  
|                        |                             | AES 451 Atmospheric Fluid Dynamics I  
|                        |                             | AES 454 Forecasting Mesoscale Proc*  
|                        |                             | AES 461 Atmospheric Radiation I  
|                        |                             | AES 471 Radar Meteorology  
|                        |                             | AES 472 Satellite Meteorology*  
|                        |                             | AES 490 Special Topics in Earth & Atmos  
|                        |                             | AES 495 Directed Study  
|                        |                             | AES 497 Undergrad Internship  
|                        |                             | AES 499 Undergrad Research

*MA 281 can be used to satisfy the Area V Mathematics requirement or the Applied Statistics requirement, but not both.  
Strongly recommended.