<table>
<thead>
<tr>
<th>Year</th>
<th>FIRST SEMESTER</th>
<th>SECOND SEMESTER</th>
<th># CREDIT HOURS</th>
</tr>
</thead>
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<tr>
<td>FRESHMAN</td>
<td>ENGL 1113, Principles of English Composition (Core I) 3</td>
<td>ENGL 1213, Principles of English Composition (Core I), or EXPO 1213, Expository Writing (Core I) 3</td>
<td>15</td>
</tr>
<tr>
<td>SOHOMORE</td>
<td>MATH 2433, Calculus &amp; Analytic Geometry III 3</td>
<td>MATH 2433, Calculus &amp; Analytic Geometry IV 3</td>
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<tr>
<td>JUNIOR</td>
<td>ENGL 3133, Technical Writing 3</td>
<td>ENGR 3723, Numerical Methods for Engr. Computation 3</td>
<td>15</td>
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<tr>
<td>SENIOR</td>
<td>METR 4911, Senior Seminar (Capstone) 1</td>
<td>METR 4911, Senior Seminar II (Capstone) 2</td>
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* Students who have not completed two years of the same foreign language in high school are required to take two college courses in the same foreign language. This additional coursework may add 6-10 hours to the minimum hours required for graduation.

1. To be chosen from the University-Wide General Education Approved Course List for Core III (Social Science) and Core IV (Humanities). At least three hours must be upper-division outside the major.

2. AGSC 1013 or 2013 fulfills a College of Atmospheric and Geographic Sciences requirement for a geography course. If AGSC 1013 or 2013 is not taken, a faculty-advisor-approved science course in geography must be taken.

3. An upper-division math course. May be exchanged for a course in an area of concentration or approved minor (see reverse side).

4. Minimum of nine upper-division hours of faculty-advisor-approved science courses in geography, geology, geophysics, physics, engineering, math, physical sciences and/or biological sciences or faculty-advisor-approved courses in a minor or area of concentration. If AGSC 1013 or 2013 is not taken, three hours must be in geography.

5. Students must attain a grade of C or better in all MATH, PHYS, CS, and METR courses that are direct prerequisites for METR courses. Please see reverse side for these prerequisites.

* This course fulfills the Computer Literacy Requirement for graduation as required by the Oklahoma State Regents for Higher Education.

**NOTE:** No more than 52 hours of Meteorology coursework may be taken to fulfill the 125-126 minimum credit hours required.

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**University-Wide General Education Requirements (minimum 40 hours)**

Courses designated as Core I, II, III, IV, or Capstone are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student’s major. Courses graded S/U or P/NP will not fulfill the requirements.

**Core I**
- Symbolic and Oral Communication (9-19 hours, 3-5 courses)
  - English Composition—6 hours, 2 courses
  - Foreign Language—6-10 hours, 2 courses in the same language, (can be met by successfully completing 2 years of the same foreign language in high school)
  - Other courses such as communication, logic or public speaking

**Core II**
- Natural Science (7 hours, 2 courses)
  - Courses must be taken from different disciplines in the biological and/or physical sciences; one of which must include a laboratory

**Core III**
- Social Science (6 hours, 2 courses)
  - One course must be PSC 1113, "American Federal Government"

**Core IV**
- Humanities (12 hours, 4 courses)
  - Understanding Artistic Forms—3 hours, 1 course
  - Western Civilization and Culture—6 hours, 2 courses, including HIST 1483 or HIST 1493
  - Non-Western Cultures—3 hours, 1 course

**Senior Capstone Experience (3 hours, 1 course)**

**NOTE:** Meteorology requires two courses for completion of the Capstone Experience, METR 4911 and METR 4922.
COURSES IN COMPUTER SCIENCE (CS)

1313 Programming for Nonmajors. Prerequisite: Mathematics 1523 or equivalent. Introduction to the design and implementation of computer programs. Emphasis on problem solving. (F, Sp)

1373 Introduction to Computer Science. Prerequisite: Grade of C or better in 1313, 1323, 2423, Physics 2514 or 1205. Introduces programming concepts, logical thinking, and problem solving. Topics include structured programming, program design and development, data structures, and algorithm development. (F, Sp, Su)

1373 Introduction to Computer Science. Prerequisite: Grade of C or better in 1313, 1323, 2423, Physics 2514 or 1205. Introduces programming concepts, logical thinking, and problem solving. Topics include structured programming, program design and development, data structures, and algorithm development. (F, Sp, Su)

2423 Calculus and Analytic Geometry III. Prerequisite: Mathematics 2433 or equivalent. Functions of several variables; partial derivatives; vector-valued functions; multiple integrals; infinite sequences and series. (F, Sp, Su)

2433 Calculus and Analytic Geometry IV. Prerequisite: Mathematics 2433. Vectors and vector-valued functions; parametric equations; polar coordinates; applications. (F, Sp, Su)

G3113 Atmospheric Dynamics I: Intro to Atmospheric Kinematics/Dynamics. Prerequisite: Grade of C or better in 2423, 2433. Introduction to atmospheric kinematics and dynamics. Topics include kinematic potential, geostrophic winds, and isentropic analysis. (F, Sp)

G3223 Physical Meteorology I: Cloud Physics, Atmospheric Electricity and Optics. Prerequisite: Grade of C or better in 3123, 3223. Mathematical methods and physical principles of cloud and precipitation physics. Topics include cloud microphysics, atmospheric electricity, and radiation. (F, Sp)

G3613 Meteorological Measurement Systems. Prerequisite: Grade of C or better in 2423, 2433, 3123, 3223. Introduces the physical principles of meteorological instruments, discusses static and dynamic sensor performance, and explores the concepts of meteorological instruments, and to identify sensor limitations and major error sources. Furthermore, basic procedures of data analysis will be discussed. (F, Sp)

AERIAL CONCENTRATION IN COMPUTER SCIENCE

1313 Programming for Nonmajors. Prerequisite: Mathematics 1523 or equivalent. Introduction to the design and implementation of computer programs. Emphasis on problem solving. (F, Sp)

COURSES IN ENGINEERING (ENG)

G3123 Numerical Methods for Engineering Computation. Prerequisite: 1101, 1102 or Computer Science 1313. Basic methods for obtaining numerical solutions with a digital computer. Included are methods for the solution of algebraic and transcendental equations, simultaneous linear equations, ordinary and partial differential equations, and curve fitting techniques. The methods are compared with respect to computational efficiency and accuracy. (F, Sp, Su)


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G4133 Atmospheric Dynamics II: Mid-Latitude Synchronous-Scale Dynamics. Prerequisite: Grade of C or better in 3123 and 3223. Concepts from kinematics, dynamics and thermodynamics used to characterize mid-latitude synchronous-scale, atmospheric instability theory as basis for understanding extra-tropical weather systems including cyclones, fronts and jets. Linear theory is used to develop the influence of atmospheric waves and their role in mid-latitude scale meteorology. (F)

G4233 Physical Meteorology III: Radiation and Climate. Prerequisite: Grade of C or better in 3123 and 3223. Fundamental principles of radiation; absorption and emission of radiation; solar and terrestrial radiation; radiative transfer and heating rates; surface and global energy balances; atmospheric greenhouse effect; natural climate variations; greenhouse climate change; stratospheric ozone depletion. (F)

G4303 Statistical Meteorology. Prerequisite: Grade of C or better in Mathematics 2423, Computer Science 1313 or Computer Science 3223. Offers specialized topics in statistical meteorology such as the role of probability and statistics in decision making, interplay between experimental design and hypothesis testing, and the use of significant tests for assessment of data and model building. Emphasis will be placed on conceptual aspects for meteorological data. (F)

G4424 Synoptic Meteorology Laboratory. Prerequisite: Grade of C or better in 3123 and 3223. Focuses on the study of observed weather patterns and dynamics associated with the development and evolution of weather and climate systems. (F, Sp)

G4613 Satellite Meteorology. Prerequisite: Grade of C or better in 3123, 3223. Survey of satellite meteorology and climatology. History of meteorological satellites, radiation, orbital mechanics, satellite systems and data processing, basic image interpretation, cloud-drift winds, precipitation, temperature, and extreme weather. Weather satellite communications skills are emphasized. (F)

G4433 Mesoscale Meteorology. Prerequisite: Grade of C or better in 4133, 4424. Structure and dynamics of convective and mesoscale phenomena including: mesoscale convective systems, severe thunderstorms, tornadoes, low-level jets, mountain waves and hurricanes. Discussion of the physical, dynamical, and micrometeorological behavior, characteristics, and dynamics of the formation and development of these phenomena, and the types of weather and hazards they produce. (F)

G4624 Radar Meteorology. Prerequisite: Grade of C or better in 3223, 3613, Mathematics 3413 or 3113. Develops quantitative relationships between physical characteristics of targets illuminated by a pulse of electromagnetic energy and the quantities measured by weather radar. Capabilities and limitations of radar design are studied relative to meteorological applications. Doppler principles, including interpretation of data, are provided. Polarimetric and phased array radar are introduced. Experience is gained in hands-on exercises with weather radars and computer-based labs. (S)

G4633 Hydrometeorology. Prerequisite: Grade of C or better in 3123, 3223 or permission of instructor. Interdisciplinary emphasis on mesoscale precipitation processes, applications of new hydrometeorological observations, and on the interactions between meteorology and hydrology during flood events. (F)

4995 Senior Seminar (Capstone). Prerequisite: Grade of C or better in 3123, 3223. With 4992, satisfies Capstone course requirement. The instructor will guide senior meteorology majors through planning of a research project. Interdisciplinary topics are encouraged and library work will be required. Students will be paired with regular or adjunct faculty mentors. Senior doctoral students will provide training in meteorological research techniques. These two courses will build a strong foundation for the second-year Capstone sequence which will serve as a guide for the senior research project. In addition, the instructor may present professional skills useful during job search, early employment, and graduate school application and attendance. Note that METR 4922 should be taken following this course. (F, Sp) [V]

4992 Senior Seminar II (Capstone). Prerequisite: Grade of C or better in 3123, 3223, 4991, with approval of instructor and completion of course requirement. The instructor will guide students as they finalize their research project. This course will be taken with approval of the research plan established in the mini-proposa completed in METR 4911. Library work will continue to be required with development of research methodology and analysis of results. Students will continue to work with faculty (senior doctoral student mentors). The culmination of the two-course Capstone sequence will be written and oral presentation of the senior thesis. These two courses are intended to be taken in Capstone I and II and will be useful whether the student is employed in academia, government, or the private sector. (F, Sp) [V]