REQUIREMENTS FOR THE BACHELOR OF SCIENCE/ DATA SCIENCE & ANALYTICS, MASTER OF SCIENCE
COLLEGE OF ATMOSPHERIC AND GEOGRAPHIC SCIENCES
THE UNIVERSITY OF OKLAHOMA

Academic Year	General Requirements	Program
For Students Entering the Oklahoma State System for Higher Education **Summer 2024 through Spring 2025**	Minimum Total Credit Hours ..... **145-148** Minimum Upper-Division Hours ..... **52** **Minimum Retention/Graduation Grade Point Averages:** Overall - Combined and OU ..... **3.00** Major - Combined and OU **3.00**	**Meteorology** **A686/F267-Q449** Bachelor of Science/Data Science & Analytics, Master of Science

OU encourages students to complete at least 29 hours of applicable coursework each year to have the opportunity to graduate in 5 years.

GENERAL EDUCATION AND COLLEGE REQUIREMENTS

Courses for fulfillment of General Education and college requirements must be from the approved General Education course list at http://www.ou.edu/content/gened/courses.html. **Courses graded P/NP will not apply**

UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

At least three hours of Upper-Division General Education coursework must be completed **outside the major**.

Code	Title	Credit Hours
Core Area I: Symbolic and Oral Communication		
English Composition (6 hours)		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-10 hours)		
(0-10 hours in the same language) Students who have not completed two years of the same language in high school are required to take two college courses in the same language		
Beginning Course		0-5
Beginning Course, continued		0-5
Mathematics (minimum 3 hours)		
MATH 1914	Differential and Integral Calculus I [1]	4
Core Area II: Natural Science (minimum 7 hours, 2 courses)		
CHEM 1315	General Chemistry (Science with Lab) [1]	5
PHYS 2514	General Physics for Engineering and Science Majors (Science without Lab) [1]	4
Core Area III: Social Science (6 hours)		
P SC 1113	American Federal Government	3
Choose one course from the General Education Social Science list		3
Core Area IV: Arts and Humanities		
Artistic Forms (3 hours)		
Choose one course from the General Education Artistic Forms list.		3
Western Culture (6 hours)		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
Choose one course from the General Education Western Culture list (Excluding HIST 1483 and HIST 1493)		3
World Culture (3 hours)		
Choose one course from the General Education World Culture list		3
Core Area V: First Year Experience (3 hours)		
Choose one course		3
Total Credit Hours		**40-50**

1 College of Atmospheric and Geographic Sciences requirements.

ADDITIONAL COLLEGE REQUIREMENTS FOR B.S.

Code	Title	Credit Hours
MATH 2924	Differential and Integral Calculus II [1]	4
PHYS 2524	General Physics for Engineering and Science Majors	4
Total Credit Hours		**8**

1 MATH 1823, MATH 2423, and MATH 2433 will also fulfill the college's calculus requirement.

FREE ELECTIVES

Electives to bring total applicable hours to the minimum total required for the degree including 52 at the upper-division level, and at least 30 at the Graduate level (5000-6000-level).
Shared hours with the M.S. will replace 12 elective hours in the undergraduate degree.

UNDERGRADUATE MAJOR REQUIREMENTS

Code	Title	Credit Hours
Core (48 hours, 15 courses)		
METR 1003	Introduction to the Atmospheric Sciences	3
METR 2004	Atmospheric Circulations	4
METR 2213	Physical Meteorology I:Thermodynamics	3
METR 2613	Atmospheric In-Situ & Surface-Based Measurements	3
METR 3113	Atmospheric Dynamics I: Intro to Atmospheric Kinematics/Dynamics	3
METR 3123	Atmospheric Dynamics II: Theory of Atmospheric Flows	3
METR 3223	Physical Meteorology II: Cloud Physics, Atmos Electricity/ Optics	3
METR 3334	Principles of Research & Communication in Meteorology	4
METR 3513	Atmospheric Chemistry in Weather and Climate	3
METR 4133	Atmospheric Dynamics III: Mid-Latitude Synoptic-Scale Dynamics	3
METR 4233	Physical Meteorology III: Radiation and Remote Sensing	3
METR 4424	Synoptic Meteorology Laboratory	4
METR 4433	Mesoscale Meteorology	3
METR 4523	Climate and the General Circulation	3
METR 4913	Senior Seminar	3
Major Elective (3 hours)		
Choose one Meteorology, Hydrology or Climatology upper-division elective		3
Total Credit Hours		**51**

UNDERGRADUATE MAJOR SUPPORT REQUIREMENTS

- **Courses required for major support may *not* also fulfill University-Wide General Education Requirements.**

Code	Title	Credit Hours
Math and Physics		
MATH 2934	Differential and Integral Calculus III	3-4
or MATH 2443	Calculus and Analytic Geometry IV	
PHYS 1311	General Physics Lab I	1
MATH 3413	Physical Mathematics I	3
METR 3323		3
or MATH 4753	Applied Statistical Methods	
Programming Elective		
Choose one course from the following:		1-4
METR 1313	Introduction to Programming for Meteorology	
C S 1321	Java for Programmers	
C S 1323	Introduction to Computer Programming for Programmers	
C S 1324	Introduction to Computer Programming for Non-Programmers	
Total Credit Hours		**11-15**

GRADUATE REQUIREMENTS

Code	Title	Credit Hours
Core DSA (25 hours)		
DSA 4513	Database Management Systems [1]	3
DSA 4413	Algorithm Analysis [1]	3
DSA 5005	Computing Structures [1,3]	5
DSA 5013	Fundamentals of Engineering Statistical Analysis [2]	3
DSA 5021	Data Analytics Applied to Meteorology Data [1]	1
DSA 5103	Intelligent Data Analytics	3
DSA 5113	Advanced Analytics and Metaheuristics	3
DSA 5900	Professional Practice	4
Graduate Electives (8 hours)		

Choose 8 hours of elective coursework from DSA, METR, ISE, or C S to bring total applicable graduate-level hours to 33.	8
Total Credit Hours	**33**

1 Hours shared between the undergraduate and graduate degrees.

2 Students who have taken METR 3323 or MATH 4753 will have DSA 5013 waived and replaced with a 3 hour Graduate Elective.

3 DSA 5005 requires a pre-requisite of C S 2334.

More information in the catalog: (http://ou-public.courseleaf.com/atmospheric-geographic-sciences/meteorology/meteorology-bachelor-science-data-science-analytics-master-science/).

INFORMATION CONCERNING GENERAL RULES, REGULATIONS AND MINIMUM REQUIREMENTS FOR UNDERGRADUATE DEGREES

Total Hours: A minimum of 120 semester hours acceptable toward graduation must be completed.
Upper-Division Hours: A minimum of 40 upper- division semester hours acceptable toward graduation must be completed. OU courses numbered 3000 or above are upper- division. Transfer work is counted as lower-division or upper-division credit depending on the level at which it was offered at the institution where it was earned. Two-year college work is accepted only as lower-division credit.
Senior Institution Hours: A minimum of 60 semester hours applied toward graduation must be earned at senior (4-year) institutions.
Residency:

- A minimum of two semesters must be spent in residence in the College of Atmospheric and Geographic Sciences.
- At least 36 of the last 48 hours must be completed in residence at OU.

Individual Studies: No more than six hours of independent study or directed readings may be applied toward degree requirements.
Grade Point Averages: Students must earn a minimum overall 2.25 for each of the following: Combined Retention GPA (all college grades), OU Retention GPA, GPA for all major courses, and GPA for all major courses taken at OU.

SUGGESTED SEMESTER PLAN OF STUDY

This plan shows one possible grouping of courses that would allow students to graduate in four years. Please refer to the front of the degree checksheet for official requirements. Students must consult with College of Atmospheric and Geographic Sciences and/or School of Meteorology academic advisers to verify that courses selected each semester fulfill the recommended plan and satisfy university, College of Atmospheric & Geographic Sciences, and Meteorology major requirements.

Year		FIRST SEMESTER	Hours		SECOND SEMESTER	Hours
FRESHMAN	METR 1003	Introduction to the Atmospheric Sciences [1]	3	MATH 2924	Differential and Integral Calculus II (Core I) [1]	4
	ENGL 1113	Principles of English Composition (Core I)	3	PHYS 1311	General Physics Lab I [1]	1
	MATH 1914	Differential and Integral Calculus I (Core I) [1]	4	PHYS 2514	General Physics for Engineering and Science Majors (Core II) [1]	4
	CHEM 1315	General Chemistry (Core II)	5	METR 1313	Introduction to Programming for Meteorology (or other programming elective from list in major support) [1]	3
					First Year Experience (Core V)	3
		CREDIT HOURS	**15**		**CREDIT HOURS**	**15**
SOPHOMORE	METR 2004	Atmospheric Circulations [1]	4	METR 2213	Physical Meteorology I:Thermodynamics [1]	3
	MATH 2934	Differential and Integral Calculus III [1]	4	METR 2613	Atmospheric In-Situ & Surface-Based Measurements [1]	3
	PHYS 2524	General Physics for Engineering and Science Majors [1]	4	P SC 1113	American Federal Government (Core III)	3
	ENGL 1213 or EXPO 1213	Principles of English Composition (Core I) or Expository Writing	3	C S 2334	Programming Structures and Abstractions	4
	HIST 1483 or HIST 1493	United States to 1865 (Core IV) or United States, 1865 to the Present	3		General Education Western Culture (Core IV) [2]	3
		CREDIT HOURS	**18**		**CREDIT HOURS**	**16**
JUNIOR	METR 3113	Atmospheric Dynamics I: Intro to Atmospheric Kinematics/ Dynamics [1]	3	METR 3123	Atmospheric Dynamics II: Theory of Atmospheric Flows [1]	3
	METR 3513	Atmospheric Chemistry in Weather and Climate [1]	3	METR 3223	Physical Meteorology II: Cloud Physics, Atmos Electricity/ Optics [1]	3
	METR 3323 or MATH 4753	1 or Applied Statistical Methods[1]	3	METR 3334	Principles of Research & Communication in Meteorology [1]	4
	MATH 3413	Physical Mathematics I [1]	3		General Education World Culture (Core IV) [2]	3
		General Education Artistic Forms (Core IV) [2]	3		General Education Social Sciences (Core III) [2]	3
		CREDIT HOURS	**15**		**CREDIT HOURS**	**16**
SENIOR	METR 4133	Atmospheric Dynamics III: Mid-Latitude Synoptic-Scale Dynamics [1]	3	METR 4433	Mesoscale Meteorology	3
	METR 4233	Physical Meteorology III: Radiation and Remote Sensing [1]	3	METR 4523	Climate and the General Circulation [1]	3
	METR 4424	Synoptic Meteorology Laboratory [1]	4	DSA 4413	Algorithm Analysis	3
	METR 4913	Senior Seminar	3	DSA 5021	Data Analytics Applied to Meteorology Data	1
	DSA 5005	Computing Structures	5	DSA 5113	Advanced Analytics and Metaheuristics	3
		CREDIT HOURS	**18**		**CREDIT HOURS**	**13**
FIFTH YEAR	DSA 4513	Database Management Systems	3	DSA 5900	Professional Practice	4
	DSA 5013	Fundamentals of Engineering Statistical Analysis	3		Graduate Elective	3
	DSA 5103	Intelligent Data Analytics	3		Graduate Elective	2
		Graduate Elective	3			
		CREDIT HOURS	**12**		**CREDIT HOURS**	**9**

1 **Students must attain a grade of C or better in all MATH, PHYS, and C S, and in METR courses that are direct prerequisites for other METR courses.**

2 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.

- Students who have not completed two years of the same language in high school are required to take two college courses in the same language. This additional coursework may add 6-10 hours to the minimum hours required for graduation.