ATMOSPHERIC SCIENCE AND PHYSICS MAJOR (B.SC.) (67 CREDITS)

Offered by: Atmospheric & Oceanic Sciences (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 67

Program Description

(66-67 credits)

The B.Sc.; Major in Atmospheric Science and Physics provides a solid study in meteorology, atmospheric physics, or related fields.

The program is jointly offered by the Department of Physics and the Department of Atmospheric and Oceanic Sciences. Students should consult undergraduate advisers in both departments.

Degree Requirements — B.Sc.

This program is offered as part of a Bachelor of Science (B.Sc.) degree.

To graduate, students must satisfy both their program requirements and their degree requirements.

- The program requirements (i.e., the specific courses that make up this program) are listed under the Course Tab (above).
- The degree requirements—including the mandatory Foundation program, appropriate degree structure, and any additional components—are outlined on the Degree Requirements page.

Students are responsible for ensuring that this program fits within the overall structure of their degree and that all degree requirements are met. Consult the Degree Planning Guide on the SOUSA website for additional guidance.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Required Courses (54 credits)

Expand allContract all

Course	Title	Credits
ATOC 214	Introduction: Physics of the Atmosphere.	3
ATOC 215	Oceans, Weather and Climate.	3
ATOC 309	Weather Radars and Satellites.	3
ATOC 312	Rotating Fluid Dynamics.	3
ATOC 315	Thermodynamics and Convection.	3
COMP 208	Computer Programming for Physical Sciences and Engineering .	3
MATH 222	Calculus 3.	3
MATH 223	Linear Algebra.	3
MATH 314	Advanced Calculus.	3
MATH 315	Ordinary Differential Equations.	3
PHYS 230	Dynamics of Simple Systems.	3
PHYS 232	Heat and Waves.	3
PHYS 241	Signal Processing.	3
PHYS 257	Experimental Methods 1.	3
PHYS 333	Thermal and Statistical Physics.	3
PHYS 340	Majors Electricity and Magnetism.	3
PHYS 342	Majors Electromagnetic Waves.	3
PHYS 346	Majors Quantum Physics.	3

Complementary Courses (12-13 credits)

3 credits selected from:

Expand allContract all

Course	Title	Credits
ATOC 357	Atmospheric and Oceanic Science Laboratory.	3
PHYS 258	Experimental Methods 2.	3

9-10 credits selected from:

Expand allContract all

Course	Title	Credits
ATOC 357	Atmospheric and Oceanic Science Laboratory.	3
ATOC 404	Climate Physics.[1]	3
ATOC 480	Honours Research Project.	3
ATOC 512	Atmospheric and Oceanic Dynamics.	3
ATOC 513	Waves and Stability.	3
ATOC 515	Turbulence in Atmosphere and Oceans.	3
ATOC 517	Boundary Layer Meteorology .	3
ATOC 521	Cloud Physics.	3
ATOC 525	Atmospheric Radiation.	3
ATOC 531	Dynamics of Current Climates.	3
ATOC 540	Synoptic Meteorology 1.	3
ATOC 541	Synoptic Meteorology 2.	3
ATOC 548	Mesoscale Meteorology.	3
ATOC 557	Research Methods: Atmospheric and Oceanic Science.	3
ATOC 558	Numerical Methods and Laboratory.	3
ATOC 568	Ocean Physics.	3
COMP 551	Applied Machine Learning.	4
PHYS 331	Topics in Classical Mechanics.	3
PHYS 339	Measurements Laboratory in General Physics.	3
PHYS 404	Climate Physics.[1]	3
PHYS 432	Physics of Fluids.	3
PHYS 434	Optics.	3
PHYS 449	Majors Research Project.	3
PHYS 512	Computational Physics with Applications.	3

[1] Students cannot take both ATOC 404 Climate Physics. and PHYS 404 Climate Physics..