

ATMOSPHERIC AND OCEANIC SCIENCES LIBERAL PROGRAM - CORE SCIENCE COMPONENT (B.SC.) (48 CREDITS)

Offered by: Atmospheric & Oceanic Sciences (Faculty of Science)

Degree: Bachelor of Science

Program credit weight: 48

Program Description

The B.Sc.; Liberal Program - Core Science Component in Atmospheric and Oceanic Sciences provides a solid foundation of knowledge relevant for the physical science of the atmosphere and oceans with application to weather and climate. The program may be completed in 45 or 48 credits

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 (21 credits)

Expand allContract all

Course	Title	Credits
ATOC 214	Introduction: Physics of the Atmosphere.	3
ATOC 312	Rotating Fluid Dynamics.	3
ATOC 315	Thermodynamics and Convection.	3
MATH 222	Calculus 3.	3
MATH 223	Linear Algebra.	3
MATH 314	Advanced Calculus.	3
MATH 315	Ordinary Differential Equations.	3

Complementary Courses (24-27 credits)

Note: All students are encouraged to consult with the Undergraduate Adviser for help selecting from among the complementary courses.

3-6 credits selected from:

Expand allContract all

Course	Title	Credits
ATOC 215	Oceans, Weather and Climate.	3
ATOC 219	Introduction to Atmospheric Chemistry.	3

3 credits selected from:

Expand allContract all

Course	Title	Credits
ATOC 357	Atmospheric and Oceanic Science Laboratory.	3
PHYS 257	Experimental Methods 1.	3

3 credits selected from:

Expand allContract all

Course	Title	Credits
PHYS 230	Dynamics of Simple Systems.	3
PHYS 251	Honours Classical Mechanics 1.	3

3 credits selected from:

Expand allContract all

Course	Title	Credits
PHYS 232	Heat and Waves.	3
PHYS 253	Thermal Physics.	3

12-15 credits selected from (at least 6 of which must be ATOC):

Expand allContract all

Course	Title	Credits
ATOC 309	Weather Radars and Satellites.	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 519	Advances in Chemistry of Atmosphere.	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 546	Current Weather Discussion.	1
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 208	Computer Programming for Physical Sciences and Engineering .	3
MATH 203	Principles of Statistics 1.	3
MATH 319	Partial Differential Equations .	3
PHYS 333	Thermal and Statistical Physics.	3
PHYS 340	Majors Electricity and Magnetism.	3