Prerequisite:
portion of the course is to practice the weathercasting and report.
The course learning about geography and weathercasting rules. A large
advice, supervision, and guidance. In lecture, students will spend most of
readings; (2) opportunities to practice weathercasting on video, and (3)
students with: (1) information in the form of lectures and supplemental
for radio and television. The instructors of this course will provide the
This course is to practice in preparing and presenting weathercasts
1 Semester Credit Hour (1 Lecture Hour)

ATSC Advisor for minor programs.

cumulative grade point average on all courses attempted in the minor
prerequisites for the courses. Students must earn a 2.50 minimum
Students should consult the catalog to determine any additional
prerequisites for the courses. Students must earn a 2.50 minimum

Notes:

Students should consult the catalog to determine any additional
prerequisites for the courses. Students must earn a 2.50 minimum
cumulative grade point average on all courses attempted in the minor
discipline. The selection of courses must be made in agreement with the
ATSC Advisor for minor programs.

Courses

ATSC 2101 Weathercasting
1 Semester Credit Hour (1 Lecture Hour)
This course is to practice in preparing and presenting weathercasts
for radio and television. The instructors of this course will provide the
students with: (1) information in the form of lectures and supplemental
readings; (2) opportunities to practice weathercasting on video, and (3)
advice, supervision, and guidance. In lecture, students will spend most of
the course learning about geography and weathercasting rules. A large
portion of the course is to practice the weathercasting and report.
Prerequisite: ATSC 2403.

ATSC 2403 Introduction to Meteorology
ATSC 3306 Atmospheric Thermodynamics
ATSC 4302 Dynamic Meteorology I
ATSC 4303 Dynamic Meteorology II
ATSC 4304 Mesoscale Meteorology
ATSC 4305 Physical Meteorology
ATSC 4306 Atmospheric Thermodynamics
ATSC 4307 Remote Sensing
ATSC 4308 Selected Topics

4 Semester Credit Hours (3 Lecture Hours, 2 Lab Hours)

This course will enhance student skills for analyzing atmospheric
science-related datasets under various scientific programming
environments. The focus is on developing a data analysis and problem-
solving skillsets using mostly Python. The course includes: basic
concepts of operating systems and high-level programming languages;
basics of programming in Python; general data analysis methods and tools;
scientific data formats used in remote sensing data and numerical
model output; publication-quality scientific graphics; and critical steps of
building a large programming project. Examples with IDL and FORTRAN
are also included.

ATSC 2403 Introduction to Meteorology
4 Semester Credit Hours (3 Lecture Hours, 2 Lab Hours)
This course is an introduction to meteorology and the dynamics
of planetary atmospheres. Emphasis on atmospheric accretion,
composition, evolution, structure, and dynamics. Lab exercises cover
basic measurement techniques, weather maps, and forecasting.
Co-requisite: SMTE 0096.

ATSC 3305 Physical Meteorology
3 Semester Credit Hours (3 Lecture Hours)
This course will cover the fundamentals of atmospheric physics including
the atmospheric composition, kinetic theory of gases, moist processes,
aerosol, solar and terrestrial radiation, scattering of electromagnetic
radiation and radiative transfer.
Prerequisite: ATSC 2403 and PHYS 2426.

ATSC 3306 Atmospheric Thermodynamics
3 Semester Credit Hours (3 Lecture Hours)
This course introduces a foundation in the thermodynamics of the
atmosphere. After a brief review of general thermodynamics, the
emphasis is given to the basic principles that are useful for the
application to atmospheric problems. The course covers a number of
atmospheric processes that are basically thermodynamic in nature. The
specific topics include aerological diagrams, atmospheric statics, and
vertical stability.
Prerequisite: ATSC 2403 and PHYS 2425.

ATSC 3401 Synoptic Meteorology
4 Semester Credit Hours (3 Lecture Hours, 2 Lab Hours)
This course focuses on introducing middle-latitude synoptic weather
phenomenon, including planet waves, frontal systems etc. We will apply
principles of Dynamic Meteorology in regards to processes in
the atmosphere, weather elements and forecasting. We will examine
the structure and dynamics of these systems by integrating weather
observations with the current state of dynamic theory, numerical
weather prediction models, and the physical principles of atmospheric
thermodynamics and cloud and precipitation physics.
Prerequisite: ATSC 3306 and MATH 2414.
Co-requisite: SMTE 0096.
ATSC 3402 Mesoscale Meteorology
4 Semester Credit Hours (3 Lecture Hours, 2 Lab Hours)
This course focuses on introducing mesoscale weather systems including thunderstorms, squall lines and hurricanes, as well as the mechanisms of tornado and lightning. The methods of observing, analyzing, and predicting these severe weather systems with the interpretation of satellite and radar images will also be introduced in this class.
Prerequisite: ATSC 3306.
Co-requisite: SMTE 0096.

ATSC 4301 Dynamic Meteorology I
3 Semester Credit Hours (3 Lecture Hours)
This course focuses on introductory-level atmospheric dynamics. Basic concepts of geophysical fluid dynamics and its application to a variety of atmospheric phenomena are introduced. Specific topics include the equations of motion on rotating earth, vorticity, potential vorticity, divergence, circulation theorem, and planetary wave.
Prerequisite: ATSC 3306 and MATH 2414.

ATSC 4302 Dynamic Meteorology II
3 Semester Credit Hours (3 Lecture Hours)
This course is a continuation of ATSC 4301 (Dynamic Meteorology I), which covers the introductory-level atmospheric dynamics. The course introduces more advance materials including equatorial waves, baroclinic and barotropic instability, two-dimensional turbulence, atmospheric teleconnection, El Ninõ/Southern Oscillation, Madden-Julian Oscillation, global warming, and numerical modeling of atmospheric circulations.
Prerequisite: ATSC 4301.

ATSC 4305 Remote Sensing
3 Semester Credit Hours (3 Lecture Hours)
This course aims to introduce the fundamentals of satellite/airborne remote sensing techniques and demonstrates its application to various aspects of Earth Sciences. Topics include physical principles of remote sensing from ultraviolet to the microwave, radiometry, sensors and sensor technology, calibration, and environmental applications for land, ocean and atmosphere research.
Prerequisite: PHYS 2426.

ATSC 4335 Climate and Climate Variability
3 Semester Credit Hours (3 Lecture Hours)
This course intended to guide environmental science undergraduate students in developing a conceptual understanding of Earth's global climate and its variability. Review past climates, present mean state of the climate system, climate variability from seasonal to multi-decadal time scales, and climate change. Special attention will be given to climates of the Gulf of Mexico, Caribbean Sea and surrounding land regions. Plausible climate-change scenarios, as well as mitigation and adaptation strategies will also be discussed. Cross listed with ESCI 4335.
Prerequisite: (ATSC 2403 or ESCI 3351).

ATSC 4496 Directed Independent Study
1-4 Semester Credit Hours (1-4 Lecture Hours, 4 Lab Hours)
Requires a formal proposal of study to be completed in advance of registration and to be approved by the supervising faculty, the Chairperson, and the Dean of the College.

ATSC 4498 Internship in Atmospheric Science
1-4 Semester Credit Hours
ATSC 4498 (Internship in Atmospheric Science) gives ATSC undergraduates an opportunity to obtain valuable paid or unpaid work experience related to atmospheric science, to better position them for employment after graduation. Students contract to work a specified number of hours weekly over a full semester with a state or federal agency or private industry related to atmospheric science, in return for college credit as follows: 3-6 hrs./week=1 sem. hr., 6-9 hrs./week =2 sem. hrs., 9-12 hrs./week=3 sem. hrs., 12-15 hrs./week=4 sem. hrs. Students may contract for 1-2 sem. hrs. in a single summer session (5.5 weeks) but may contract for up to 4 sem. hrs. if carrying out internship over a regular long semester or two summer sessions (11 weeks). If interning for the summer, students should increase the number of hours interned weekly to account for the shortened period worked, so total hours interned will be equivalent to those in a regular long semester. A student may intern only twice with a single office or agency. The internships will not apply towards graduate credit.

ATSC 4590 Selected Topics
1-5 Semester Credit Hours (1-5 Lecture Hours, 5 Lab Hours)
This course includes special topics with variable content. May be repeated for credit. Offered on sufficient demand.