

**ESCI 110: 2 s.h.**

**Introduction to Earth Sciences Programs**

General introduction to each of the earth sciences disciplines and to college life. 2 hrs. lec. Offered in fall. Restricted to earth sciences majors.

**ESCI 322: 3 s.h.**

**Environmental Hydrology**

Theory and practice of quantifying hydrologic phenomena; field methods, data manipulation and environmental applications. 2 hrs. lec., 2hrs. lab.

Prereq: C- grade or higher in ESCI 221, ESCI 241 or GEOG 230 and MATH 160.

**ESCI 241: 4 s.h.**

**Meteorology (G2, L)**

Atmospheric structure and motions; physics of weather processes; weather and motion systems. 3 hrs. lec., 2 hrs. lab. Offered in fall and in spring as

needed. Coreq or Prereq: MATH 161 or 163, and PHYS 131 or PHYS 231.

**ESCI 340: 3 s.h.**

**Physical Meteorology**

Distribution of meteorological variables in the atmosphere; governing principles in atmospheric science (gas laws, hydrostatic equilibrium, diffusion, conservation of energy, mass and momentum); radiative transfer, cloud processes and atmospheric electrification. 3 hrs. lec. Offered in spring.

Prereq: ESCI 241 or PHYS Atmospheric statics, vertical stability and adiabatic cooling. Offered in fall. Prereq: ESCI 241. Coreq or Prereq: MATH 311.

**ESCI 342 3 s.h.**

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**Atmospheric Dynamics I**

Meteorological coordinate systems; equations of motion; geostrophic, gradient and thermal winds; kinematics; circulation, vorticity and divergence

theorems. 3 hrs. lec. Offered in fall. Prereq: ESCI 241. Coreq or Prereq: MATH 311.

**ESCI 343: 3 s.h.**

**Atmospheric Dynamics II**

Diagnostics equations, viscosity and turbulence; energy equations and transformations; numerical weather prediction; general circulation. 3 hrs.

lec. Offered in spring. Prereq: ESCI 342.

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**ESCI 344: 3 s.h.**

**Tropical Meteorology**

General circulation of the tropics; energy balance; boundary layer; cumulus convection; survey of tropical disturbances including tropical cyclones.

3 hrs. lec. Offered in fall of odd years. Prereq: ESCI 341, 342.

**ESCI 347: 3 s.h. (G2)**

**Satellite Meteorology**

Theory of weather satellites including orbital characteristics and signal receipt, synoptic weather interpretation, mesoscale features, precipitation

signatures, fog, wind shear, tropical weather systems. Offered in fall of even years. Prereq: ESCI 241; MATH 161 or MATH 163.

**ESCI 348: 1 s.h.**

**Broadcast Meteorology**

effect on the climate system; climate models; and the current state of climate observing networks and model validation. 2 hrs. lec.; 2 hrs. applications and analysis. Offered in spring. Prereq: ESCI 343 or ESCI 364.

**ESCI 444: 4 s.h.**

**Meso- and Storm-Scale Meteorology**

Study of high-impact events that threaten life and property. Microphysical and dynamic aspects of severe convective systems, mesoscale convective

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Physics of wind waves; turbulent fluxes at the air-sea interface; planetary boundary layers; low-frequency oceanic waves; storm surges; importance of the ocean for tropical climates; El-Niño-Southern Osc

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