Cover Sheet: Request 14377

MET 4XXX Mesoscale Meteorology

Info

Process	Course|New|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Stephen Mullens stephen.mullens@ufl.edu
Created	10/25/2019 9:20:56 AM
Updated	11/22/2019 1:37:37 PM
Description of request	This is a new meteorology course on the science and impacts of mesoscale weather, including those related to mountain-induced wind flow and precipitation, low-level jet streams, fronts and drylines, thunderstorms, and hurricanes.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CLAS - Geography 011609000	Jane Southworth		10/25/2019
No document changes					
College	Conditionall Approved	CLAS - College of Liberal Arts and Sciences	Joseph Spillane	The College Curriculum Committee conditionally approves this request, with the following: 1) start the course description at "Covers..."; 2) prerequisites should list course numbers; 3) please a grade scale	11/19/2019
No document changes					
Department	Approved	CLAS - Geography 011609000	Jane Southworth		11/22/2019
No document changes					
College	Approved	CLAS - College of Liberal Arts and Sciences	Joseph Spillane		11/22/2019
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			11/22/2019
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					

Step	Status	Group	User	Comment	Updated
No document changes					

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Submitter: Stephen Mullens stephen.mullens@ufl.edu
Created: 12/9/2019 11:06:39 AM
Form version: 5

Responses

Recommended Prefix MET
Course Level 4
Course Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Mesoscale Meteorology
Transcript Title Mesoscale Meteorology
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No

Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description Covers the major dynamic and thermodynamic processes of the atmosphere that govern the structure, development, and evolution of weather systems generally smaller than those of the synoptic scale.
Prerequisites MAC2312 & PHY2049

Co-requisites Synoptic Meteorology
Rationale and Placement in Curriculum Mesoscale systems are among the most impactful atmospheric events on society, including hurricanes, fronts, thunderstorms, and lake effect snow. Understanding what governs their growth and decay, and how they relate to synoptic scale features, is essential to meteorological knowledge. Generally, students should have gained the foundational meteorological understanding in introductory undergraduate courses, and understand general atmospheric processes through intermediate undergraduate courses. That knowledge will be used in this advanced undergraduate course.
Course Objectives Students can describe with the dynamic and physical principles underlying the structure, development, and evolution of mesoscale weather systems.
Students can demonstrate knowledge of how the vertical structure of the atmosphere controls the behavior of convective phenomena and gravity waves.
Students can demonstrate knowledge of how various indices and maps derived from atmospheric soundings can reveal the potential for severe convection to occur in the atmosphere.
Students can demonstrate knowledge of the effects of topography on the structure of mesoscale systems.
Students can demonstrate knowledge of the role of vorticity in determining the evolution of mesoscale phenomena.
Students can demonstrate knowledge of the use of atmospheric radar returns to diagnose the

structure of precipitating systems and the occurrence of such severe weather as flash flooding, hail, tornadoes, and lake-effect snowstorms.
Students can demonstrate skill in the analysis of mesoscale phenomena using surface and upper-air observations of the atmosphere.
Course Textbook(s) and/or Other Assigned Reading Mesoscale Meteorology in Midlatitudes by P. Markowski and Y. Richardson, Wiley-Blackwell, 2010.
Weekly Schedule of Topics Mesoscale vs synoptic scale definitions
Mesoscale equations and tools
Mesoscale Instabilities
Planetary boundary layer
Lake effect snow, horizontal convective rolls, sea and land breeze
Mountain waves, downslope windstorms
Cold air damming, lee cyclogenesis
Fronts, dryline, outflow boundaries
Low level jet
Convective initiation, single cells
Hodographs, multicell storms, squall lines, supercells
Mesoscale convective systems
Tornadoes, hail, flash floods
Tropical and extratropical cyclone track deflection over mountains
Hurricanes, tropical cyclone tornadoes
Grading Scheme 35% Weekly Homework
15% In class activities
20% Midterm Exam
30% Final Exam

A	93.0-100
A-	90.0-92.9
B+	87.0-89.9
B	83.0-86.9
B-	80.0-82.9
C+	77.0-79.9
C	73.0-76.9
C-	70.0-72.9
D+	67.0-69.9
D	63.0-66.9
D-	60.0-62.9
E	0.0-59.9

Instructor(s) Stephen Mullens
Attendance & Make-up Yes
Accomodations Yes
UF Grading Policies for assigning Grade Points Yes
Course Evaluation Policy Yes