

# Cover Sheet: Request 13385

## MET4XXC Synoptic Meteorology

### Info

Process	Course New Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Esther Mullens emullens@ufl.edu
Created	12/4/2018 8:34:48 PM
Updated	11/3/2019 11:01:26 AM
Description of request	New course request for MET4XXX 'Synoptic Meteorology (Lecture and Lab)'

### Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CLAS - Geography 011609000	Jane Southworth		1/4/2019
No document changes					
College	Recycled	CLAS - College of Liberal Arts and Sciences	Joseph Spillane	The Committee recycles this request, with the following changes needed: 1) remove "lab" from the title, since a "C" designation suggests combined lecture and lab; 2) remove the co-listing explanation, unless there is going to be a specific-numbered graduate version of the course; 3) please clarify the repeatable credit--if the course is repeatable, then 8 repeatable credits allowed; 4) please revise the Course Description using the committee's guide (see link below); 5) please revise the Course Objectives (see the link below for assistance); 6) please remove A+ from the grade scale, as UF does not award this grade.  <a href="https://gov.clas.ufl.edu/files/CorProblems-Checklist.pdf">https://gov.clas.ufl.edu/files/CorProblems-Checklist.pdf</a>	2/8/2019
No document changes					
Department	Approved	CLAS - Geography 011609000	Jane Southworth		3/18/2019
No document changes					
College	Recycled	CLAS - College of Liberal Arts and Sciences	Joseph Spillane	The College Curriculum recycles this request, noting that none of the requested changes from February have been made.	4/19/2019
No document changes					
Department	Approved	CLAS - Geography 011609000	Jane Southworth		7/21/2019

Step	Status	Group	User	Comment	Updated
No document changes					
College	Conditionally Approved	CLAS - College of Liberal Arts and Sciences	Joseph Spillane	The College Curriculum Committee conditionally approves this request, with the following changes requested: 1) please make sure all the course objectives conform to UCC style guidelines (see <a href="https://gov.clas.ufl.edu/files/College-Curriculum-Committee-Problems-Checklist.pdf">https://gov.clas.ufl.edu/files/College-Curriculum-Committee-Problems-Checklist.pdf</a> );	10/14/2019
No document changes					
Department	Approved	CLAS - Geography 011609000	Jane Southworth		10/24/2019
No document changes					
College	Approved	CLAS - College of Liberal Arts and Sciences	Joseph Spillane		11/3/2019
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			11/3/2019
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					
No document changes					

## Course|New for request 13385

### Info

**Request:** MET4XXXC Synoptic Meteorology

**Description of request:** New course request for MET4XXX 'Synoptic Meteorology (Lecture and Lab)'

**Submitter:** Esther Mullens emullens@ufl.edu

**Created:** 12/9/2019 10:57:04 AM

**Form version:** 21

### Responses

**Recommended Prefix** MET

**Course Level** 4

**Number** XXX

**Category of Instruction** Advanced

**Lab Code** C

**Course Title** Synoptic Meteorology

**Transcript Title** Synoptic Met

**Degree Type** Baccalaureate

**Delivery Method(s)** On-Campus

**Co-Listing** No

**Co-Listing Explanation** None.

**Effective Term** Earliest Available

**Effective Year** 2019

**Rotating Topic?** No

**Repeatable Credit?** No

**Amount of Credit** 4

**S/U Only?** No

**Contact Type** Regularly Scheduled

**Weekly Contact Hours** 4

**Course Description** Comprehensive survey of mid-latitude storm systems using conceptual and theoretical frameworks established through lecture material, and application of these concepts through immersive labs. Content includes atmospheric circulation, mid-latitude cyclones, fronts, jet streams, winter weather and severe storm environments. Appropriate for students seeking a career in atmospheric science or related field.

**Prerequisites** MET3503 (C) &

CHM 2045 (C) &

MAC 2312 (C) &

PHY 2048/L (C)

**Co-requisites** None

**Rationale and Placement in Curriculum** This course is a 'core' course in meteorology, and one of several that will be developed in the coming years to grow UF's meteorology program. This course is typically taught after basic introductory courses. It precedes more math-intensive courses in dynamic & physical meteorology.

**Course Objectives** Students who successfully complete this course will be able to:

- Identify and describe fundamental atmospheric processes that create temperature change, vertical motions and precipitation, the development and decay of mid-latitude storms, fronts, and their associated hazards.
- Apply the quasi-geostrophic (QG) and potential vorticity (PV) frameworks for synoptic systems.
- Describe orally and in writing current and forecast synoptic-scale weather patterns based on their

critical evaluation of multi-platform meteorological data (e.g., observations, models, satellite, radar etc.).

**Course Textbook(s) and/or Other Assigned Reading** Mid-latitude Synoptic Meteorology: Dynamics, analysis, and forecasting, by Gary Lackmann (2011), ISBN: 9781878220103 (Text)

Synoptic-Dynamic Meteorology Lab Manual by Gary Lackmann, Brian Mapes, and Kevin Tyle (Lab)

**Weekly Schedule of Topics** Schedule of topics:

Weeks 1 & 2: Background and basics. Introduction to global and U.S. meteorological observations and models. Fundamental equations.

Weeks 3 & 4: Lower tropospheric charts and dynamical processes. Hand-analysis and model-analysis of relevant maps. Quasi-geostrophic framework 1.

Weeks 5 & 6: Upper tropospheric charts and dynamical processes. Hand analysis and model analysis of relevant maps. Quasi-geostrophic framework 2.

Week 7: Other measurements - isentropic analysis, potential vorticity, radar and satellite.

Week 8-10: Mid-latitude storms - Bergen cyclone model, development processes, conveyor belts, intensification mechanisms, Baroclinic instability

Weeks 11 & 12: Weather Fronts - development and lifecycles

Week 13-15: Winter and spring storms, forecasting & impacts, final project presentations.

Week 16: Final exam

**Schedule of assignments**

One lab per week (dedicated 50-minute class time to be scheduled following the lectures) between week 2-15

Midterm held during first or second week of October

Regular homework throughout semester - typically due every other week (6-8 total homework assignments)

Semester project will start after the mid-term in late November and due the week prior to Finals.

**Links and Policies** Grading scheme

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Policy on absences (including religious) Class attendance & class participation

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Accommodations & DRC

[www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

Sexual misconduct

Academic misconduct & student code

<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

Health and Wellness

<https://counseling.ufl.edu/>

Evaluations

<https://evaluations.ufl.edu>

**Grading Scheme** Exam and Assessment Breakdown:

Two exams (25% of grade) - one midterm (10%), one final (15%)

Participation (10% of grade). Semester-long weather forecasting challenge, online discussions based on textbook readings or journal articles. One or two required readings per week.

Homework (20% of grade). Mixture of short answer and auto graded Canvas quizzes, 4-6 total.

Lab exercises (30% of grade), 1 lab weekly. Includes short homework-style tasks, periodic weather briefings, analysis of real-time events through current meteorological observations and models.

Project & presentation (15% of grade). A short scientific paper on the evolution of a historical weather event. Students will use model and observation archives along with peer-reviewed literature, and theory from the lectures & textbook.

Grades:

A => 90%,

B+ = 87-89.99%,

B = 83-86.99%,

B- = 80-82.99%

C+ = 77-79.99%,

C = 73-76.99%,

C- = 70-72.99%,

D+ = 66-69.99%,

D = 63-65.99%,

D- = 60-62.99%

**Instructor(s)** Dr. Esther Mullens

Mr. Stephen Mullens

Dr. Corene Matyas