This course is available for student registration only after the approval process has been completed.

Subject: MET (e.g., CSE)  
Course No.: 4407 (e.g., 1301)  
Credit Hours: 3  
Term to Be Added to the File: (e.g., Fall 2010)

Class Hours: 37.5/hem  
Lecture Hours: 37.5/hem  
Lab Hours:  
Contact Hours (CEU Only):  

Department: Marine and Environmental Systems (e.g., Computer Sciences)  
Schedule Type: Lecture (A) (e.g., Lecture, Lab or Special Topics/Project)

☐ College of Aeronautics - 23  
☐ College of Psychology and Liberal Arts - 25  
☐ Nathan M. Bisk College of Business - 24  
☐ College of Science - 26  
☐ College of Engineering - 1  
☐ Extended Studies Division / Nathan M. Bisk College of Business - 90

Computer Title: Restricted to 25 characters, including spaces  
Marine Meteorology

Catalog Title: Restricted to 25 characters, including spaces

Catalog Description of Course: Restricted to 350 characters, including spaces

Applies the basic laws of thermodynamics and geophysical fluid dynamics to the behavior and circulation in the atmosphere and how these laws interact with the ocean.

In addition, please attach a course syllabus and/or more detailed description.

Restrictions:  
☒ Prerequisite: OCN 2407  
☒ Corequisite: OCN 3401

☐ Prerequisite:  
☐ Corequisite:  
☐ Prerequisite:  
☐ Corequisite:  

Grades to Be Issued:
☒ A, B, C, D, F  
☐ A, B, C, D, F, CEU  
☐ CEU  
☐ S, U  
☐ P, F  
☐ Other

Additional Restriction:  
(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

Subject Prefix: MET  
Course No.: 4407  

Approvals: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator: G. Mail  
Date: April 1, 2010

Chair, Graduate Council:  
Date:  

OR

Chair, Associate Dean:  
Date:  

Chair, Undergraduate Curriculum Committee:  
Date:  

Catalog Director:  

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Date:  

Catalog Director:  
Date:  

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MET 4407 MARINE METEOROLOGY

2010-2011 Catalog Data: MET 4407 MARINE METEOROLOGY. (3 credits). The application of the basic laws of thermodynamics and geophysical fluid dynamics to the behavior and circulation in the atmosphere and their interaction with the ocean.

Required

Prerequisites by Topics: OCN 2407, “Meteorology”; Corequisite: OCN 3401, “Physical Oceanography”.

Textbook (T) and References (R):
- (R) Coastal Meteorology, National Academy of Science, 1992
- (R) Atmosphere-Ocean Dynamics, Adrian E. Gill, Academic Press, 1982
- (R) Forecasters Guide to Tropical Meteorology, C.S. Ramage, AWS, 1995
- (R) Global Perspectives on Tropical Cyclones, WMO, No. TCP-38, 1995
- (R) Tropical Meteorology, H. Riehl, McGraw-Hill, 1954

Course Learning Outcomes: The student will be able to:

1. Understand the relationship between atmosphere and ocean interactions.
2. Conduct forecasting and interpreting weather systems at sea.
3. Understand weather and climate in the tropics
4. Write computer code for analyzing data from difference sources.

Topics Covered and Associated Time:

1. How the ocean-atmosphere system is driven (2 classes)
2. Conservation of thermodynamic energy (2 classes)
3. Mass and moisture conservation (2 classes)
4. Boundary layer processes and marine boundary layer (4 classes)
5. Coastal meteorology (2 classes)
6. Thermally driven effects (2 classes)
7. Tropical Dynamics (3 classes)
8. Tropical Wind systems and trade winds (3 classes)
9. Regional Climate and Atlantic Hurricanes (2 classes)
10. Monsoon Dynamics (2 classes)

Class/Laboratory Schedule: Fall, Tuesday and Thursday, 11:00 to 12:15 p.m.

Contribution of Course to Meeting the Professional Component: Atmospheric Science/Meteorology: 3 credit or 100%.
### Relationship of Course to Program Outcomes:

<table>
<thead>
<tr>
<th>Course Outcomes</th>
<th>A</th>
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### Program Outcomes

- A. Ability to apply knowledge of mathematics, science and engineering
- B. Ability to design and conduct experiments, as well as to analyze and interpret data
- C. Ability to design a system, component or process to meet desired needs
- D. Ability to function on multi-disciplinary teams
- E. Ability to identify, formulate and solve engineering problems
- F. Understanding of professional and ethical responsibility
- G. Ability to communicate effectively
- H. Broad education to understand the impact of engineering solutions in global and societal context
- I. Recognition of the need for, and an ability to engage in life-long learning
- J. Knowledge of contemporary issues
- K. Ability to use the techniques, skills, and engineering tools necessary for engineering practice
- L. Knowledge and skills to apply principles of probability and statistics
- M. Knowledge and skills to apply the principles of oceanography, waves and acoustics to engineering problems
- N. An ability to integrate multiple technical areas
- O. An understanding of the necessity for design optimization

**Prepared By:** S. Chiao, Ph.D., Associate Professor of Meteorology, 3/2010