UC 12303 135

CBM003 ADD/CHANGE FORM

☒ Undergraduate Council	or	☐ Graduate/Professional Studies Council
☐ New Course ☒ Course Change		☐ New Course ☐ Course Change
Core Category: Life/Phys Sci Effective Fall ~~2013~~ 2014		Effective Fall 2013

1. Department: EAS College: NSM
2. Faculty Contact Person: Xun Jiang Telephone: 713-893-1697 Email: xjiang7@uh.edu
3. Course Information on New/Revised course:
   - Instructional Area / Course Number / Long Course Title:
     GEOL / 1350 / Introduction to Meteorology
   - Instructional Area / Course Number / Short Course Title (30 characters max.)
     GEOL / 1350 / INTRODUCTION TO METEOROLOGY
   - SCH: 3 Level: FR CIP Code: 40.0401.0002 Lect Hrs: 3 Lab Hrs: 0

RECEIVED APR - 4 2013

4. Justification for adding/changing course: **To meet core curriculum requirements**
5. Was the proposed/revised course previously offered as a special topics course? ☐ Yes ☒ No
   If Yes, please complete:
   - Instructional Area / Course Number / Long Course Title:
     _____ / _____ / _____
   - Course ID: _____ Effective Date (currently active row): _____
6. Authorized Degree Program(s): _____
   - Does this course affect major/minor requirements in the College/Department? ☐ Yes ☒ No
   - Does this course affect major/minor requirements in other Colleges/Departments? ☐ Yes ☒ No
   - Can the course be repeated for credit? ☐ Yes ☒ No (if yes, include in course description)
7. Grade Option: Letter Instruction Type: Lect (Note: Lect/Lab info. must match item 3, above.)
8. If this form involves a change to an existing course, please obtain the following information from the course inventory: Instructional Area / Course Number / Long Course Title
   _____ / _____ / _____
   - Course ID: 17646 Effective Date (currently active row): _____
9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)
   Cr. 3. (3-0). Corequisite: MATH 1310 or MATH 1311. Basic concepts and principles of meteorological processes including clouds and precipitation, local and global circulation, air masses and fronts, and sever weather systems.
10. Dean's Signature: _____ Date: _____

    Print/Type Name: Ian Evans

REQUEST FOR COURSES IN THE CORE CURRICULUM

Originating Department or College: Click here to enter text.

Person Making Request: Xun Jiang Telephone: 713-893-1697

Email: xjiang7@uh.edu

Dean's Signature: _____ Date: 01/10/2013

Course Number and Title: GEOL 1350 Introduction to Meteorology

Please attach in separate documents:

X Completed CBM003 Add/Change Form with Catalog Description

X Syllabus

List the student learning outcomes for the course (Statements of what students will know and be able to do as a result of taking this course. See appended hints for constructing these statements):

Upon completion of this course, students will be able to:

1. Understand the compositions and vertical structure of the atmosphere.
2. Understand basic concepts of radiation, heat, moisture, cloud, and precipitation in the atmosphere.
3. Understand local and global circulations, air mass and fronts, climate change, and sever weather systems.

Component Area for which the course is being proposed (check one):

***Note:** If you check the Component Area Option, you would need to also check a Foundational Component Area.

☐ Communication

☐ Mathematics

☐ American History

☐ Government/Political

Science

☐ Language, Philosophy, & Culture

☐ Creative Arts

X Life & Physical Sciences

☐ Social & Behavioral Science

☐ Component Area Option

Competency areas addressed by the course (refer to appended chart for competencies that are required and optional in each component area):

X Critical Thinking

X Communication Skills

X Teamwork

☐ Social Responsibility

X Empirical & Quantitative Skills ☐ Personal Responsibility

Because we will be assessing student learning outcomes across multiple core courses, assessments assigned in your course must include assessments of the core competencies. For each competency checked above, indicated the specific course assignment(s) which, when completed by students, will provide evidence of the competency. Provide detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.

Critical Thinking:
Questions on exams will assess critical thinking. See attached page for sample questions.

Communication Skills:
Class discussion on different topics and group projects.

Empirical & Quantitative Skills:
There are multiple opportunities to learn and develop empirical and quantitative skill in this class. Students need calculate the temperature lapse rate, use one-layer model to explore the energy budget, and use excel to investigate the vertical structure and diurnal variation for temperature, relative humidity, etc.

Teamwork:
In the group projects, group members will work as a team to solve problems. Examples for the team projects include exploring the solar energy entering Earth's atmosphere using model and understanding causes for the greenhouse effect.

Social Responsibility:
N/A

Personal Responsibility:
N/A

Will the syllabus vary across multiple section of the course? ☐ Yes X No
If yes, list the assignments that will be constant across sections:
Click here to enter text.

Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every 5 years.

The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their course.

Dept. Signature: _____

Critical thinking

1. Is the change in the polar ice caps, caused by global warming, a positive or negative feedback to the initial warming? Why?

2. How does temperature change as the Earth's albedo varies from 0.0 (completely non-reflecting) to 0.8 (highly reflecting)?

3. Why is the rate of temperature decrease for moist adiabatic ascent less than for dry adiabatic ascent?

The following courses have been reviewed and approved by the NSM Curriculum Committee to meet the new core requirements. Given the length of the individual submissions I have elected to submit these requests by electronic means only.

Natural Sciences: Core Courses

BIOL 1309 – Human Genetics and Society

BIOL 1310 – General Biology

BIOL 1320 – General Biology

BIOL 1361 - Introduction to Biological Science I

BIOL 1362 - Introduction to Biological Science II

CHEM 1301 – Foundations of Chemistry

CHEM 1331 – Fundamentals of Chemistry I

CHEM 1332 – Fundamentals of Chemistry II

GEOL 1302 - Introduction to Global Climate Change

GEOL 1330 - Physical Geology

GEOL 1340 - Introduction to Earth Systems

GEOL 1350 - Introduction to Meteorology

GEOL 1360 - Introduction to Oceanography

GEOL 1376 - Historical Geology

PHYS 1301 - Introductory General Physics I

PHYS 1302 - Introductory General Physics II

PHYS 1321 - University Physics I

PHYS 1322 - University Physics II

Mathematics: Core Courses

MATH 1310 – College Algebra

MATH 1311 – Elementary Mathematical Modeling

Math/Reasoning: Core Courses

COSC 1306 – Computer Science and Programming

MATH 1330 - Precalculus

MATH 1431 - Calculus I

MATH 1432 – Calculus II

MATH 2311 – Introduction to Probability and Statistics

Writing in the Disciplines: Core Courses

BCHS Biochemistry Lab II

BIOL 3311 – Genetics Lab

PHYS 3313 – Advanced Lab I

Ian Evans

Associate Dean

4/4/13

Syllabus for GEOL 1350: Introduction To Meteorology

TIME: TuTh 1:00 PM – 2:30 PM, Spring 2013

FACULTY: Dr. Xun Jiang **OFFICE HOURS**: Tu 2:30 – 3:30 PM **ROOM**: 432D-SR1

E-mail: xjiang7@uh.edu **Phone:** 713-893-1697

I. Course Catalog Description

Basic concepts and principles of meteorological processes including clouds and precipitation, local and global circulation, air masses and fronts, sever weather systems and air pollution.

II. Topics

The following topics will be discussed in this class.

1. The origin, composition, and structure of the atmosphere
2. Solar energy, air temperature, humidity, condensation, clouds, precipitation, and winds
3. Air pressure, forces influencing the winds, and atmospheric circulations
4. Air masses, fronts, and middle-latitude cyclonic storms
5. Weather prediction, thunderstorms, tornadoes, and hurricanes
6. Global climate change, air pollution, and atmospheric radiation

III. Textbook

Essentials of Meteorology by C. Donald Ahrens, 5th edition

IV. Course Requirements

There will be one exam following each of the four sections and a comprehensive final exam covering all chapters. Quiz will also be included in this class. The exams and quiz will be multiple-choice questions, and will cover materials from the lectures.

V. Course Outcomes

1. Understand the compositions and vertical structure of the atmosphere.
2. Understand basic concepts of radiation, heat, moisture, cloud, and precipitation in the atmosphere.
3. Understand local and global circulations, air mass and fronts, climate change, and sever weather systems.

VI. Evaluation and Grading

Section exams: 20% each, 60% total (four section exams, lowest score dropped)
Quiz: 10%
Final exam: 25%
Group Project: 5%

VI. Course Structure

Course Schedule (tentative, subject to change during the semester)

Week	Wednesday	Monday
Jan 15, 17	**Plan; L1: Ch 1**	**L2: Ch 1**
Jan 22, 24	**L3: Ch 2**	**L4: Ch2**
Jan 29, 31	**L5: Ch 3**	**Review**
Feb 5, 7	**Exam 1**	**L6: Ch 4**
Feb 12, 14	**L7: Ch 4**	**L8: Ch 5**
Feb 19, 21	**L9: Ch 5**	**L10: Ch 6**
Feb 26, 28	**Review**	**Exam 2**
Mar 5, 7	**L11: Ch 6**	**L12: Ch 7**
Mar 12, 14	**Spring Break**	**Spring Break**
Mar 19, 21	**L13: Ch 7**	**L14: Ch8**
Mar 26, 28	**Review**	**Exam 3**
Apr 2, 4	**L15: Ch 8; L16: Ch 9**	**L17: Ch 10**
Apr 9, 11	**L18: Ch 11**	**L19, Ch 12/13**
Apr 16, 18	**L20: Ch 14, L21: Ch 15**	**Review**
Apr 23, 25	**Exam 4**	**Review (Final Exam)**
May 9	**Final Exam (May 9, 2pm-3:30pm)**	