Meteorology – ESCI 3403.002
Department of Physical and Environmental Science
Spring 2020

A. COURSE INFORMATION

Course number/section: ESCI 3403.002
Class meeting time: Tues-Thur 9:30-10:45 AM
Class location: CS 103
Course Website: http://bb9.tamu.edu

B. INSTRUCTOR INFORMATION

Instructor: Pat Fitzpatrick
Office location: CS243
Office hours: Mon,Wed 4-6PM, Thur 1:15-3:15PM
Telephone: 361-825-4061
e-mail: patrick.fitzpatrick@tamucc.edu
Appointments: Available by email, phone request, or videoconference. Videoconferences are especially productive and convenient for students. I’m often accessible by videoconference in the evenings and Sunday night. Email me a for a videoconference, and I’ll setup a session with Zoom software.

C. COURSE DESCRIPTION

Catalog Course Description
This course is an introduction to meteorology and the dynamics of planetary atmospheres. Emphasis on atmospheric accretion, composition, evolution, structure, and dynamics. Lab exercises cover basic measurement techniques, weather maps, and forecasting.

Extended Course Description
This course conveys meteorology concepts at the introductory college level. We will cover a broad range of topics including: basic atmospheric metrics; meteorology analysis; seasonal and climate cycles; severe weather; hurricanes; and anthropogenic (man-made) influences. Material will be a blend of material from the publisher, notes from the instructor, and internet tools. Current weather events and interesting “tidbits” will be interspersed in many lectures. Special meteorology topics not in the book related to environmental science will be included, such as hydrology, floods, unique air pollution topics, risk analysis, and being a legal expert. To include the special topics, some book chapters will be shortened.

As this class is for environmental science majors, the last few weeks of the semesters will be devoted to students providing a short presentation on an environmental topic related to their concentration with a meteorology overlap: Possibilities include:
Marine and Coastal Resources
- Coastal erosion
- Weather influences on algae blooms
- Climate change impact on (name your topic)
- Hydrology cycle/flood control/runoff issues
- Ocean acidification
- Nutrient load impact on wetland roots and vulnerability to storm surge/wave action
- Wind-driven ocean pollutants
- Microplastics in the ocean
- Example of satellite application
- Other topics?

Policies and Regulations; Environmental Health Monitoring
- Disaster mitigation or disaster preparedness
- Air pollution issues; air quality monitoring
- Clean energy (wind and solar power)
- Climate change policy
- Funding policies for atmospheric scientific research
- Example of an environmental science issue in the courtroom
- Air pollution control: Policies and legislation
- Other topics?

Geography and Geology
- Cultural geography – society’s adaption to local climate; migration due to erosion or climate change; other?
- GIS applications to meteorology (very broad topic)
- Sediment cores to determine a long-term weather record
- Factors that affect the “weathering” of rocks
- Other topics?

Air quality
- Ethanol in the atmosphere
- Facility (industrial, paper mill, refinery, coal, nuclear) monitoring
- Anthropogenic sources of air pollution
- Biogenic sources of air pollution
- Methods for measuring air pollutants
- Indices use for air quality assessment
- Effects of air pollution on human health
- Cost-effective technologies used to curb air pollution
- Example of satellite application
- Other topics?

D. PREREQUISITES AND COREQUISITES
Prerequisites
None

Corequisites
Lab ESCI 3403.101 or .102 or .103

SMTE 0096 Environmental Science Laboratory Safety Seminar required every semester for lab-based courses. The Safety Seminar must be completed before the Census Date of the semester to participate in the lab portion of this course.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

Optional Textbook(s) or Other References
None

Supplies
None

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Demonstrate a broad understanding of the science of meteorology and how it is practiced.
2. Integrate specific concepts of meteorology into a multidisciplinary analysis of the atmosphere, its currents and resulting climates.
3. Demonstrate understanding of how basic meteorological data are collected and be able to interpret a variety of meteorological data
4. Apply these concepts in the environmental sciences to their concentration

G. INSTRUCTIONAL METHODS AND ACTIVITIES

1) Classroom presentation of material and concepts.
2) Class discussions on current events linked to lecture material.
3) Practice questions from Cengage, and study guides for exams.

H. MAJOR COURSE REQUIREMENTS AND GRADING

There are three exams will be on a 0-100 scale. The points breakdown towards the total grade is as follows:
- Exam 1 – 17.5 points
- Exam 2 – 17.5 points
- Exam 3 – 17.5 points
- Presentation – 22.5 points
- Lab – 25.0 points

Final grading will be as follows: A = 90-100 pts, B = 80-89 pts, C = 70-79 pts, D = 60-69 points, F < 60

Students are required to take exams on the announced dates, except in cases of University-excused absences. Makeup exams will be administered only in the case of serious illness or a medical emergency, but you must a) contact me or leave a message with the departmental secretary before the scheduled exam time, and b) provide appropriate documentation for your absence. If you do not contact me before the scheduled exam time, you will not be allowed to take a makeup examination unless you can provide sufficient documentation both for your absence and for not contacting me before the exam. Makeup exams may be fill in the blanks or essay format.

Attendance of lectures is strongly encouraged since complementary material will be presented in lectures and included on examinations.

Incompletes will be awarded only in rare circumstances and only when there is a documented medical emergency, family emergency, or legal reason for not completing the required course work by the end of the semester. Awarding an incomplete requires a written agreement between instructor and student outlining how and when the work will be completed.

I. COURSE CONTENT/SCHEDULE

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<thead>
<tr>
<th>Weeks</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1-4</td>
<td>Components of Chapters 1-5</td>
</tr>
<tr>
<td>4</td>
<td>Exam 1</td>
</tr>
<tr>
<td>5-8</td>
<td>Components of Chapters 6-11</td>
</tr>
<tr>
<td>9</td>
<td>Exam 2</td>
</tr>
<tr>
<td>9-12</td>
<td>Components of Chapters 12-16, Chapter 19</td>
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</table>
12     Exam 3
13-14  Presentations
15     Presentations during the final exam period if necessary. The final exam period is scheduled on Thursday, May 14, at 8AM. The final exam schedule is at: https://registrar.tamucc.edu/Register%20for%20Classes/Final_Exams.html.

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Attendance/Tardiness
It is in the best interest of student’s interest to attend each class, because of the weight placed on the lectures in the homework and exams. Participation is essential to do well in the class, which includes in-class discussion and direct communication with the instructor and peers.

Late Work and Make-up Exams
Students are required to take exams on the announced dates, except in cases of University-excused absences. Makeup exams will be administered only in the case of serious illness or a medical emergency, but you must a) contact me or leave a message with the departmental secretary before the scheduled exam time, and b) provide appropriate documentation for your absence. If you do not contact me before the scheduled exam time, you will not be allowed to take a makeup examination unless you can provide sufficient documentation both for your absence and for not contacting me before the exam. Makeup exams may be fill in the blanks or essay format. There will be no makeup of any missed daily quizzes.

Cell Phone Use
Silent. Note Taking Only. No ringing, conversations, or texting

Laptop Use
Note Taking Only. No Internet surfing

Food in Class
Coffee, water, and/or soft drinks only. No food

Missed Exam
If you do not contact me before the scheduled exam time, you will not be allowed to take a makeup examination unless you can provide sufficient documentation both for your absence and for not contacting me before the exam. Makeup exams may be fill in the blanks or essay
format. There will be no makeup of any missed daily quizzes.

**Participation**
The student is expected to attend all classes, participate fully in classroom discussions and cooperate in learning experiences with other classmates. The expected workload is two hours of work for every hour of time spent in class. This will vary from week to week with some weeks having more work required and other weeks having less.

**K. COLLEGE AND UNIVERSITY POLICIES**

- **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high-quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. **Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.** Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course
drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

  http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. **OTHER INFORMATION**
• **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.