

**METR 4000/ESCI 5000/GEOG 5000 – THE ECONOMIC IMPACTS OF WEATHER**  
**SPRING SEMESTER 2009**

**COURSE WEB SITE:**

<http://personal.uncc.edu/betherto/metr4000.htm>

**COURSE TIME/PLACE:**

Lecture: Tuesday and Thursday 2:00 P.M. – 3:15 P.M. (Room 203)

**COURSE INSTRUCTOR:**

Instructor: Dr. Brian Etherton – Room 237  
Office Hours: Monday & Tuesday, 10:00 - 11:00 A.M.,  
Monday & Wednesday 1:30 P.M. – 2:30 P.M.

**COURSE DESCRIPTION:**

The course will introduce students to the role that weather plays as a source of financial and operational risk for businesses, markets and other institutions. Weather and climate are fundamental drivers of economic activity and financial risk. Weather affects a wide range of industries, including energy, agriculture, insurance, construction, retail, and transport, among others. This course will introduce students to the role that weather plays as a source of financial and operational risk for businesses, markets and other institutions. It will also introduce the tools and concepts of weather risk management - the insurance products, financial derivatives, and decision tools that institutions can use to reduce their weather-related risks. Students will get to hear from professionals how they handle weather risk, and in turn students will assess the risks to a company of their choosing.

**REQUIRED TEXT:**

*"Economic Value of Weather and Climate Forecasts"* by Richard Katz and Allan Murphy

**EXAM SCHEDULE AND GRADING:**

MIDTERM EXAM	Thursday – March 5 <sup>th</sup> – 2:00 P.M.	25%
FINAL EXAM	Tuesday – May 5 <sup>th</sup> – 3:00 P.M.	25%
In Class Assignments	(6 during the semester)	25%
Final Presentation	(Grads Solo, Undergrads Pairs)	10%
Final Paper	(Grads Solo, Undergrads Pairs)	15%

100 - 90	A	89-80	B	79-70	C
69-60	D	59-0	F		

**COURSE POLICIES:**

**Attendance, Participation and Due Dates:** Regular class attendance and active participation is expected. You are responsible for all information presented in class; if you are absent, you will need to contact a classmate to obtain the material.

**Assignment Deadlines and Exam Dates:** **I expect you to turn in assignments and take exams as scheduled** - except due to extraordinary circumstances or participation in a college sanctioned event. **I will not accept late assignments.** If you know you will not be in class on the due date, turn the assignment in early. **Exams will occur as scheduled and there are no make-up exams.** If you miss an exam for what you believe to be a valid reason, you must

provide written documentation in order for me to consider allowing a make-up exam. There will be **no extra credit**.

Expectations: Responsibilities of both students and instructor for this course are reasonable and in keeping with UNC-Charlotte guidelines for academic ethics. As a student, you are expected to arrive for class on-time. **I am under no obligation to reiterate material for those arriving late**. To do so would interrupt the flow of class for all the other students.

### **TOPICS FOR THE COURSE:**

WEATHER PREDICTION Numerical modeling, ensemble forecasting. I.

FORECAST VERIFICATION – Definitions of accuracy. Absolute and comparative verification methods. Forecast quality and value. II.

VALUE OF WEATHER INFORMATION – Economics and the value of information, valuation puzzles. III.

FORECAST VALUE: PRESCRIPTIVE DECISION STUDIES – Decision trees, case studies. IV.

FORECAST VALUE: DESCRIPTIVE DECISION STUDIES – Payoff function, cost of information. Case studies. V.

FORECAST VALUE: PROTOTYPE DECISION-MAKING MODELS – Construction of tools, VI.

### **GUEST SPEAKERS:**

A number of guest speakers will present during the semester. Presenters will discuss how their own business is impacted by weather and climate, and how they deal with weather related economic impacts. All students are expected to attend these presentations.

### **FINAL PRESENTATIONS/PROJECTS:**

As a pair (undergraduate students) or individually (graduate students) you will choose a business to assess. In your presentation and paper, you will determine the degree to which weather and climate impacts this business, then discuss how this business mitigates this weather risk, and conclude with your recommendations of what this business **COULD** do to further manage weather risk. Presentations will be approximately 15-minutes.

### **ACADEMIC INTEGRITY:**

The UNC Charlotte Code of Student Academic Integrity governs the responsibility of students to maintain integrity in academic work, defines violations of the standards, describes procedures for handling alleged violations of the standards, and lists applicable penalties. The following conduct is prohibited in that Code as violating those standards:

A. Cheating. Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices in any academic exercise. This definition includes unauthorized communication of information during an academic exercise.

B. Fabrication and Falsification. Intentional and unauthorized alteration or invention of any

information or citation in an academic exercise. Falsification is a matter of altering information, while fabrication is a matter of inventing or counterfeiting information for use in any academic exercise.

C. Multiple Submission. The submission of substantial portions of the same academic work (including oral reports) for credit more than once without authorization.

D. Plagiarism. Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgement of the source). The sole exception to the requirement of acknowledging sources is when the ideas, information, etc. are common knowledge.

E. Abuse of Academic Materials. Intentionally or knowingly destroying, stealing or making inaccessible library or other academic resource material.

F. Complicity in Academic Dishonesty. Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

A full explanation of these definitions, and a description of procedures used in cases where student violations are alleged, is found in the complete text of The UNC Charlotte Code of Student Academic Integrity. This Code may be modified from time to time. Users are advised to contact the Office of the Dean of Students to assure they consult the most recent edition.

#### **UNIVERSITY POLICY:**

Students are expected to comply with university policy as it relates to academic integrity and student expectations. The Code of Student Responsibility can be found at the following website: <http://www.legal.uncc.edu/policies/ps-104.html>

Students with documented disabilities are eligible to receive assistance from the Office of Disability Services in Fretwell 230 (ext. 4355). For detailed information please see the current UNC Charlotte catalog.