



Implementation of “Weather and Climate Studies” course at North Carolina A&T State University



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I) Introduction:

The Energy & Environmental Systems (EES) Department at North Carolina A&T State University offers a 3-credit hour “Weather and Climate Studies” course both in traditional classroom setting (EES234 & EES235 - optional Lab) and online (EES234-05 & EES235-05 optional Lab). This course is available for all majors across the University campus to fulfill a General Education (GenEd) course requirement. This course is available during fall and spring semesters.

The Weather and Climate Studies course is designed to address the common misunderstandings and misconception in weather and climate, climate change, and global warming. To engage, motivate, and expose the students in the course to the interdisciplinary nature of weather and climate issues, we included some historical case studies in the course, e.g. impact of weather on famous war battles, impact of weather climate on food production and transportation and the implication to society, impact of severe storms on communities, etc. We collaborate with the Department of History to provide course content and delivery that will be highly engaging for students. By leveraging the support from AMS Climate Studies, we competed and won a University funding to further enhance the implementation of the course during Spring 2015. The funding allowed faculty and graduate students from EES and History to get training on the basic applications of GIS so that students will be exposed to the basics of GIS during the EES235 Lab sessions. To meet the growing demand for GenEd courses of the traditional and non-traditional, including adult students, an online options was offered starting Fall 2015.

II) Objectives:

- Provide an opportunity for students to develop skills in the principles and processes of scientific inquiry through application of the scientific method to analyze phenomena, issues, and problems related to meteorology and climatology along with their societal impact.
- Prepare an innovative inter-departmental collaboration centered around GIS between the History and EES departments.
- Focus on improving student success in general education courses, development of a History GIS course track, and developing faculty teaching and research capacity in GIS.
- Focus on improving student success through EES234
- Development of a History GIS course track
- Provide faculty development

III) Student learning outcomes:

- Apply the principles of scientific inquiry in the analysis of weather and climate problems
- Test hypotheses based on weather and climate empirical data presented in graphs, charts, etc.
- Differentiate between causation and correlation with respect of weather and climate events

IV) Enrollment:

Semester	No. of students in	
	Traditional class	Online class
Spring 2015	25	Not offered
Fall 2015	23	30
Spring 2016 (anticipated)	25	70

V) Assessment measures:

- Pre- and post-test on important course concepts to determine students’ increased knowledge regarding common weather and climate misconceptions
- Quizzes and homework assignments along with exam performance will provide data on students’ progress with materials.

VI) Accomplishment:

- Team teaching (with History Department; Spring 2015) and faculty collaboration
- Professional development for faculty
- Infrastructural enhancement
- Opportunities for exploring funding through collaborations

VII) Course improvement plan:

- Weekly performance on quizzes and assignments along with feedbacks solicited during class meetings. This will help to apply adjustments in lecture delivery - help accomplish student learning outcomes.
- Semester long performance test using comprehensive exams and ungraded surveys
- Utilize pre- and post-test survey data for longer range improvements in the course

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