Introduction

Madison Area Technical College is part of the Wisconsin Technical College System and is accredited by the Higher Learning Commission (HLC). It offers more than twelve dozen career programs as well as College Transfer classes. Enrollment, including degree students and other students, is approximately 40,000.

Madison Area Technical College has a College Credit Transfer program wherein credits transfer easily to University of Wisconsin campuses – both to the flagship campus in Madison and to UW campuses in Milwaukee, Green Bay, Oshkosh, Eau Claire, etc. – wherever a like class is taught. Credits earned for this “Climate & Climate Change” class, developed for Madison Area Technical College, will transfer directly to the UW-Madison, where the same course will be taught by Steve Ackerman in Spring 2013. Climate & Climate Change class credits can also transfer as general science class credits.

Class Design

Two 15-week classes were offered: one was entirely online, the second was a ‘hybrid’ class wherein content was presented online, with 50-minute face-to-face class meetings each week with group discussion and guest speakers. Because instructional support and curriculum development was funded by a NASA grant, tuition was not charged for the class; in order to attract only motivated students, we required a short sentence stating their motivation for taking the class as a condition for enrollment. Interestingly, the class format had no discernible influence on the learning outcomes of the students. The class included readings from various peer-reviewed journals, and this was problematic for some students who struggled with jargon and the level of math. The class had no educational prerequisites, and enrolled students had a variety of skill levels. Some students had very little scientific background, others had taken Weather and Climate (an introductory class at Madison College) and done well. A syllabus is available upon request.

Evaluation Results

A pre-test and post-test were given to the students to gauge how their knowledge of Climate and Climate Change altered (improved, in the ideal case) throughout the course.

Note that almost all students showed an increase in test scores from before to after the class.

Most students also answered more questions correctly than incorrectly at the end of the class as well.

Students were asked for general comments on the class; some are shown below.

When the course started I didn’t feel like I had a good working climate vocabulary. Reading the articles was so unlike learning a foreign language. I think a book (either hard copy or e-book) would have been helpful for a reference.

I would have been interested in more debate. Perhaps with other groups in the college. Or some group work within the class. I also expected a little more math, but I am not at all saying it is a bad thing that mathematics was missing.

More on political battle.

The class might have benefited from defining a little deeper into the media’s influence on how climate change is presented, but I was definitely encouraged to think critically.

Readings and data provided were usually very advanced and explanations were not clear to someone without previous climate knowledge.

Unfortunately I think online classes just are not for me.

Future Plans

Some students were put off by the lack of a book. We have used grant funds to purchase copies of Michael Mann’s book Dire Prediction for future Climate & Climate Change classes. This book is intended to help introduce meteorological and climatological terminology to the students as well as to familiarize them with key concepts.

The online version of the class suffers from a lack of discussion time. Although this can be addressed in some ways by online discussions (written), a more interactive and synchronous discussion – such as those allowed in Google Hangouts – may be used in Spring 2013.

Students had notable difficulties with the terminology that percolates through some of the technical readings that were assigned. As a result, student feedback has been used to develop a Glossary of Terms. This glossary includes both Meteorological Phrases – such as ENSO – and scientific words like hysteresis and bifurcation that students were unfamiliar with to the extent that they interfered with comprehension.

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Please contact the authors below to discuss or receive any information discussed in this poster:

Scott S. Lindstrom
Matthew A. Lazzara
Monica K. Harkey
Susan E. Lynds

slindstrom@madisoncollege.edu
mlazzara@madisoncollege.edu
harkey@madisoncollege.edu
susamlynds@colorado.edu