Demand on Online Weather and Atmosphere Courses Offered by CSUN

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At California State University, Northridge, the online teaching program began in fall 1999 with 8 GE courses offered. In order to encourage faculty members to be engaged in GE online courses, the University's Office of Online Instruction offered webct workshops every semester. An estimate of more than 700 faculty members have attended the workshops during the past eight years. The workshop covered the topics of creating Homepage, Image Database, Content Modules, Quiz, Bulletinboard, and Chatroom using WebCT software. The software programs such as photoshop, power point, and dreamweaver were also offered to enhance the instructor's ability to manipulate various kinds of files and to create a webpage. The university provided an incentive program awarding faculty members who teach a GE online course the first time with a stipend of $2,000. The stipend had been reduced to $1,000 subsequently and passed out last year (2006) due to the increasing number of online courses offered. In Spring 2007, the Office of Online Instruction awarded more than 20 faculty members with a stipend of $500 each for their attendances at four series of workshops aiming at improving fully online teaching skills such as using Podcasting and Eluminate programs for more dynamic course presentation. Some college deans considered online teaching as a significant criterion in favor of merit salary increase. Some department chairs offered 3-unit release time to online teaching participants. The purpose of the university's online teaching policy is to accelerate the rate of graduation for undergraduate students. As a result, the university fully online courses have increased from 8 courses in 1999 to 116 courses in Fall 2007. A total of 7 fully online weather-related courses are listed in the University's fully online schedule for fall 2007. More than 700 faculty members have their course WebPages. and about 23,000 students have their online course accounts at the present time.

The author began to teach a fully online atmosphere course (Geography 311) in fall 2003. So far, the author has developed 4 completely online courses: Weather (Geography 103), Atmosphere, Air Pollution (Geography 415), and Boundary-layer Climatology (Geography 412). Weather course fulfills lower-division GE science requirement whereas Atmosphere course fulfills upper-division GE science requirement. Air Pollution and Boundary-layer Climatology meet the major's requirement. All GE classes that the author offered reached full enrollment within a few days of the opening of registration. In fall 2007, fully online Weather and Atmosphere Laboratory Courses (Geography 105OL and Geography 311LOL) are offered the first time to meet the new GE science laboratory requirements. Exercises in Weather Studies Investigation Manual published by AMS were uploaded to Weather Laboratory course (Geography 105OL) website using Respondus software. Fifteen exercises were placed in Quizzes (exercises) and Assignments tools. Students are expected to complete one exercise in Quizzes tool each week. For those exercises and questions that require drawings such as isobars, isotherms, and station plots are placed in the Assignments tool. The data sheet obtained from the AMS Weather Studies website can be downloaded to a student's computer desktop. Mappings are achieved by using PC Paint program, photoshop, or other graphic software available to students. The completed maps are than uploaded to the Assignments tool for instructor's evaluation. The Assignments tool provides figures, tables, and exercise-related materials in addition to the instruction of completing questions in Quizzes tool. Course grades are determined by 3 examinations placed in the Quizzes tool. The similar method is used to create fully online atmosphere laboratory (Geography 311LOL) website with a different textbook and the accompanied laboratory manual.

The demand data for online and inclass courses for the period from spring semester 2004 through fall semester 2006 are available from the University's Institutional Research (Figures 1 and 2). Demand data (Dnmd) refer to the unduplicated count of regular qualified students that attempted to enroll in a course but were unable to. The Demand unmet (Unmet) data are defined as students in demand that are still unable to enroll in a course. Both Dnmd and Unmet data show consistently higher numbers semester after semester for online courses than their counterpart inclass courses. The strong demand for online courses may be attributable to two facts: (1) students are highly interested in taking online courses; and (2) fewer online sections are offered than inclass sections for the same course. It is foreseeable that offering more class sections should reduce the course demand. It was notable that In Fall Semesters of 2004 and 2005, two Atmosphere online sections (Geography 311OL) were offered whereas only one inclass section was offered. This is reflected by an almost double enrollment in online course than in inclass course. However, the demand and unmet data still show a much higher value for online course than for inclass course. Hence, it may be concluded that students are indeed highly interested in taking online courses.

The average demand enrollment is 77.2 students per semester for online Atmosphere course (Geography 311OL) as oppose to 6.2 students per semester for inclass course (Geography 311). For Weather course,

the average demand enrollment is 84.5 students per semester in online course (Geography 103OL) against 50 students per semester for inlass course (Geography 103). Unlike inclass Geography 311, inclass Geography 103 has a strong demand. It appears that 2 additional class sections can be opened for both online Atmosphere (geography 311OL) and Weather (Geography 103OL) courses assuming the enrollments are 40 students per class. One additional inclass section is needed for Weather course (Geography 103). The demand data are useful for a chairperson to plan the number of classes to be offered for a given course.

The official class sizes vary from 40 students per class for Weather course (Geography 103) to 30 students per class for Atmosphere course (Geography 311). To accommodate high demands and drop rates on these online courses, the instructor increased enrollment for each online class substantially so that the net enrollment per class met the university requirement. The average class student drop rate is about 15% for fall 2006. The student drop rate varied greatly from class to class (Figure 3).

Figure 1: Enrollment and Demand for Weather Classes (Lower Division GE)

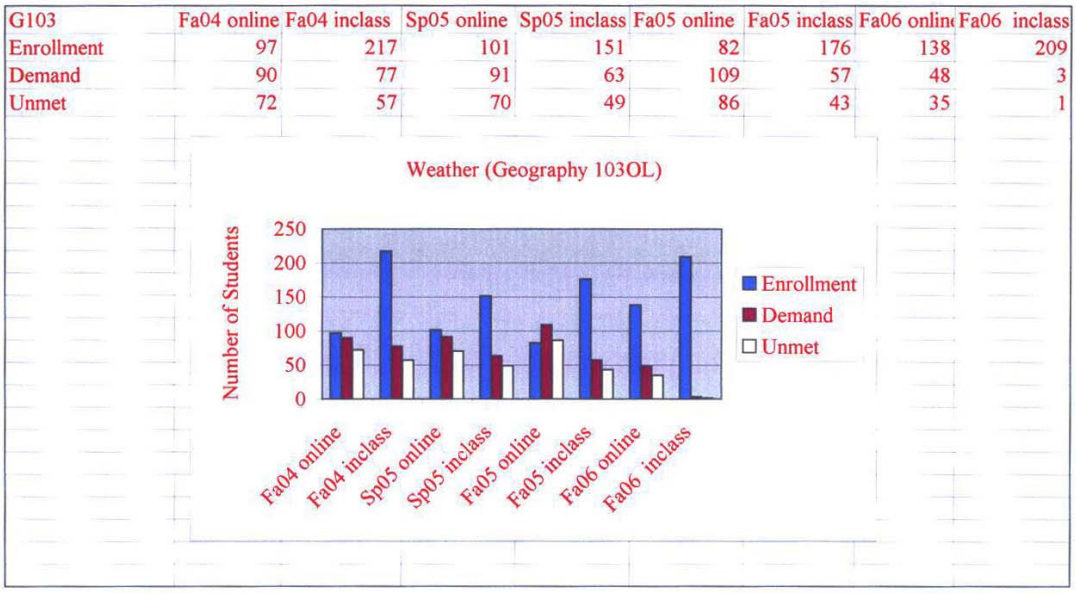

Figure 2: Enrollment and Demand for Atmosphere Classes (Upper Division GE)

G311	Sp04 online	Sp04 inclass	Fa04 online	Fa04 inclass	Sp05 online	Sp05 inclass	Fa05 online	Fa05 inclass	Fa06 online	Fa06 inclass
Enrollment	33	68	77	43	37	82	78	43	77	122
Demand	83	2	55	0	56	15	121	11	71	3
Unmet	75	2	42	0	48	12	103	9	60	3

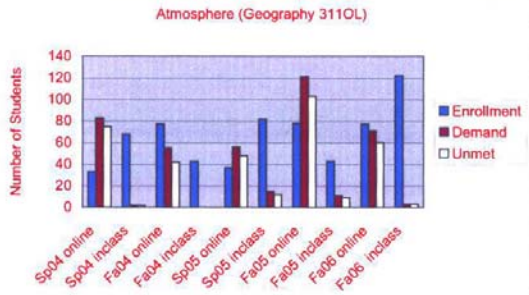

Figure 3: Enrollment and Drop Rate for Atmosphere Classes (Fall 2006)

	G103 (17695)	G103 (17696)	G311 (14294)	G311 (14295)	Average Drop Rate
Enrollment	62	59	46	42	
# of Drops	9	13	7	4	
Drop Rate (%)	14.52	22.03	15.22	9.52	15.32
Final Enrollment	53	46	39	38