David Kobilka
Central Lakes College

I work at a small rural community college where I am the only full time geoscience faculty. When I arrived here, hired on as an adjunct, enrollment was down college wide and registration for Earth Science classes was abysmally low. Administration had a tenuous commitment to even having an Earth Science department – in semesters prior to my arrival there had been no Earth Science courses offered at all. My first semester department budget did not even cover photocopies. Thanks to the generosity of colleagues I patched together charity from other departments for things like test forms and chalk.

There were 5 Earth Science classes in the department; *Concepts of Earth Science*, *Environmental Geology*, *Physical Geology*, *Minnesota Geology*, and *Oceanography*. The first class I taught on this campus was *Minnesota Geology* as a summer course. That first summer I taught it in a way different to how it had been done in the past – as a field course meeting every Wednesday for 8 weeks. Each time we met, we took an all day field trip. In this way we were able to explore the state studying outcrops and glacial landscapes along the way. Enrollment for that course surged the following summer and every subsequent year the demand for that summer course increased. During Fall and Spring semester the one strong course was Oceanography. In that class enrollment was steady and dependable. But the other Earth Science courses never filled. Surveys, both formal and informal, showed the reasons students took those classes ran the scale from an uninspired "I took this class because I have to take a science course but I hate _____ (insert one of the following; biology, chemistry, physics)", to the small cadre of the geoscience faithful; rock collectors, lots of interested retirees, one memorable gemologist, and the few students who actually intended to pursue a geoscience major.

If you have read this far you may recognize the story, if not at your own college, then maybe at some other you have heard about. The suite of classes are not unusual. *Concepts of Earth Science*, *Physical Geology*, and *Environment Geology* are tried and true geoscience courses – the very titles of these courses imply a traditional approach to geoscience teaching but, maybe in the minds of the typical scientifically disinclined community college student, dull. Enrollment would not improve without some drastic change, and it would begin with a complete shakeup of the Earth Science curriculum.

Because I was the only Earth Science faculty at my college I was in a position to work autonomously, without a committee, and without worrying about offending long-held beliefs concerning the sanctity of traditional style Earth Science classes. As an adjunct I had not much to lose. If enrollment continued to decline I would be out of a job anyway. The idea was not to scrap the entire Earth Science curriculum and start over. Rather, it was more to re-organize the curriculum. So we retired two classes; *Concepts of Earth Science*, and *Environmental Geology*. We then re-packaged that curriculum to two new classes, one called *Earth Science and the Environment*, and the other, *Natural Disasters*. To compliment that and add variety we proposed one called *Geology of National Parks*, and a 1 credit stand alone laboratory section for *Oceanography.* Later, *Astronomy* was also brought into the Earth Science department. It was formerly a PHYS class, with an algebra prerequisite. It had not been offered in two years. Making it part of the Earth Science suite of classes, and eliminating the math requirement was a positive change in terms of enrollment for that class, and in the demand for Earth Science courses.

The hope with the new courses was that just their titles would suggest something interesting that did not exist with the old courses. Also, in packaging the Earth Science curriculum differently, the title of the class more faithfully describes what the class is about. While there is nothing intrinsically wrong with *Environmental Geology*, its name implies a fairly narrow focus. Yet increasingly, Environmental Geology textbooks attempt to cover the breadth and depth of all environmental issues, including those that really do not belong under the geology umbrella, like global climate change. Whereas the title *Earth Science and the Environment* is more inclusive. Caution is in order because this can work as a benefit or a disadvantage. In some colleges the title might be too broad, and in a geoscience program where a class like *Earth Science and the Environment* would be one of the elective classes required for a degree, a committee might have trouble agreeing on what topics ought to be covered. But in the two-year college, there are unwritten course goals like piquing interest, collaborative learning, and working a student's capacity for scientific thought. These goals are more prosaic than a lofty recital of Blooms Taxonomy, but they are undeniably necessary. While the higher level thinking skills are certainly written into course goals they are always tempered by the very real need to meet each student at their level, whatever their literacy and quantitative skills. Given an introductory geoscience course with a broad curriculum potential, one has the freedom to choose a balance between breadth or depth. In my experience probing fewer topics but to greater depth and detail is far more interesting, and productive. But in the process, one must carefully choose the topics you will tackle over the course of a semester. Not being constrained by a course with a narrow focus allows one to rapidly respond to the issues of the day. For example my Summer 2010 Oceanography course will focus heavily on the BP oil spill in the Gulf of Mexico.

These new courses were proposed from 2004 to 2007. They were offered to students for the first time beginning in 2005 through 2009. So from concept to completion is a spread of five years. In fact the course development part is by no means "complete," as of this writing in May of 2010. But the results of the work thus far I believe revived the Earth Science department, and laid the groundwork for my becoming a full time faculty here. Today, all of the new classes fill reliably. For some, extra sections are opened to meet high demand during peak registration. There are now 3 Earth Science faculty – 1 full time (myself) and two part-time. While the economic downturn in part has helped in the success of these new classes, they were first offered in a time of declining enrollment college wide, yet in the new Earth Science classes enrollment leaped forward.

One could argue that it is not enough to just package a course in an attractive way for the purpose of filling seats, but consider this. Students commonly enroll for a class on the name alone. Even though you provide a detailed course description, some students have no idea what the course is really about. I have observed this in all my classes where I have gotten responses that suggest a confusion for example of Astronomy with Astrology, or that Oceanography is about fish. Geology is about rocks, and Natural Disasters is about, uh, thunderstorms? But even so, each student comes to class on the first day with a certain investment in the class. On the low end is cynicism, that "I'm only in this class because I hate dissecting frogs" attitude, but on the high end there is a real belief that the class will be interesting, and . . . "fun." There, I said it. A course in an attractive package lures in more of that student investment up front. Call it "anticipation capitol." Of course you have to make good that capitol every time the class meets, hopefully so it gains interest at least until mid –semester. But to begin with more of it up

front makes it so you have fewer people to convince that science is a good thing once the course begins. What's more, you can start in right away with real challenges for the students, and more will stay with you for the long haul. I like to think of every time my class meets as an event. I am constantly thinking of how I can better convince each student that it is worthwhile to invest time and energy into the next event. I think of it as a product, and that each student adds their own value to it. I think of it as a group project, and that everyone in the class has something to gain from each student's participation. But none of that can happen unless they click *Add to Cart* for my course when shopping for classes for their next semester.

The message here is threefold:
1) If you want to broaden participation in the geosciences you first have to get students in the classroom, preferably already interested.
2) Although it seems like a marketing trick, putting your curriculum in an attractive package can bring positive results.
3) The easiest part is that attractive package. The work comes after –designing and implementing a new course with the goal of holding student interest for the entire semester takes years.