

Proposal for GEO5402 Science and Politics of Global Warming
Katsumi Matsumoto, Geology and Geophysics
5 August 2009

Statement on how GEO5402 will be different from its undergraduate version GEO3402

This is a resubmissions of an earlier proposal for GEO5402, which was denied in the previous IT curriculum meeting. This resubmission reflects exchanges I had with Associate Dean Paul Strykowski and curriculum committee chair Tom Shield.

As noted in my original proposal and this resubmission, I will give the same set of lectures to both GEO3402 and GEO5402. Graduate students will be treated differently than undergraduates in three ways:

- 1) Graduate students will have additional required readings from the most recent Intergovernmental Panel on Climate Change (IPCC) science report. This is a very dense technical report prepared by and for professional scientists. While the report would be too much for undergraduates, it is expected to be challenging but manageable for graduate students.
- 2) Graduate students will do different homework problems and exam questions that are more quantitative and difficult. Some questions will relate directly to the IPCC science report noted in (1).
- 3) The course will have greater expectations from graduate students than undergraduates in terms of class discussion and debate and performance.

Dean Strykowski raised two issues:

- (a) It is unusual to cross list 3xxx and 5xxx, while cross listing 4xxx and 5xxx is common.

MY RESPONSE: Just last fall, the IT curriculum committee approved a cross listing of GEO3002/GEO5102 both with the same title. The only differences between 5102 and 3002 are: (1) 20 min in-class presentation; (2) higher expectation of the quality of term paper. These differences are arguably less significant than the three I proposed. As illustrated in this very recent example, 3xxx and 5xxx cross listing is not unusual. I would further suggest that 4xxx/5xxx cross listing may make less sense than 3xxx/5xxx cross listing, because graduate students can take 4xxx courses for credit today. I also point out other examples of undergraduate/graduate cross listing including 1xxx/5xxx (for education degree graduate students).

- (b) How would graduate students in GEO5402 receive graduate education if they listen to the same lectures as undergraduate students in GEO3402?

MY RESPOSE: I believe that graduate students can receive graduate education even while listening to the same lectures as undergraduates. As illustration, I point to the universal experience of reading the same books many times. Later readings often reveal something new, facilitated by the greater life experiences. Analogously, I would argue that graduate students with greater academic and person experiences would be able to connect more dots and see broader implications in the same lectures than undergraduate students. A requirement to make this possible is that lectures are sufficiently challenging and novel to all. This is readily accomplished in my GEO3402/5402, because most people have not been exposed to rigorous climate science or politics. I would also add that in my previous teaching of this course, I pitched the lectures at a slightly more difficult level than average upper undergrads. It was not easy for them, and I would not think that entering graduate students will find the lectures easy either. But this is where extra work (in terms of homework and reading) can make graduate students think more deeply - that is, "graduate" education, if you will.