First of all, I would like to express my gratitude for this nomination for the Latva Teaching Award.

My philosophy of teaching is really quite simple. Its central tenet is my firm belief that most students possess quite a bit of unrealized intellectual potential. I believe even quite bright students can be encouraged to think more thoroughly and insightfully than they typically do; I therefore teach to intellectual potential rather than past achievement. I teach information, and I try to teach students how to think critically about that information. Since students often conform to expectations, I try to communicate expectations that are high, but attainable (I am also careful to reward achievement at any level). The best indicator of my success as a teacher is students who rate the course as both the most challenging and the most rewarding of their academic careers (which happens with some frequency).

Over the past 19 years at WMU, I have taught eight courses (not counting any BIOS 5970): Introductory Biology (BIOS 1510/1620), Ecology (BIOS 3010), graduate and undergraduate Evolution (BIOS 3000 and 6160), Global Change Ecology (BIOS 5440), Population Ecology (BIOS 5970), Seminar (BIOS 6050), and Climate Change Health Impacts (HNRS 4700; taught as an overload). I am planning to offer a new course, Climate Change Biology (BIOS 3200) next year. Below I highlight a few of the innovations and improvements I have made in several of these courses (but none is an exhaustive list of innovations for the corresponding course). I’d be happy to provide examples of all described materials.

Introductory Biology (BIOS 1510/1620)

- Lectures are now highly visual (lots of images to illustrate the text on PowerPoint slides), which students find quite helpful.
- Starting this semester, I make “prelecture slides” available at least several days before the corresponding lecture. I determine which parts of the text are most important for students to actually write, and leave those parts blank. The goal is to help students generate a complete set of lecture notes while still requiring them to write (so, ideally, learn) major terms and concepts, and to allow me to cover more material in a given amount of time.
- “Thought questions” are embedded throughout each lecture (in blue italics on the slide), intended to help students develop the ability to “think like a scientist”.
- I have either created or substantially modified all but one of the 14 labs, so that they now provide substantial opportunity for students to develop critical thinking skills. A typical lab handout is 10-15 pages, and has 25-35 “thought questions” embedded at appropriate points. TAs are instructed on best practices for stimulating students to generate correct responses on their own (when they do, they feel really good about it, having tapped some of their previously unrealized intellectual potential).
- I have included a lab (Cricket Courtship Communication) in which students propose a hypothesis, design an experiment to test it (using specialized software to modify the male chirp), and conduct the experiment. Over the next six weeks, they analyze their own results (so have ownership) and, in stages, produce a manuscript-style research paper. I have written extensive guidelines for performing Chi-square tests, and for writing a scientific paper.

Global Change Ecology (BIOS 5440)

- Actually, this whole course uses alternative teaching methods. The format is roundtable discussion, led by me for the first month and after that by a student Presenter. Each session address a different topic, for which the Presenter has generated an “extensive illustrated handout” (usually 12-15 pages) that summarizes current knowledge about the topic and
includes the most relevant and important figures and tables from the corresponding literature. Each student does a half-session and, about a month later, a full-session presentation, each on a different topic. For each topic, the student’s goal is to become the “resident expert” in southwest Michigan. This class format is patterned after the best learning experience I had as a graduate student.

I should also mention that, since I have taught BIOS 1510/1620, which I believe it counts as two courses (since it is a large class with a laboratory) and another course every year, technically I have been on a 3-3 schedule rather than a 2-3 schedule my entire time at WMU.

The simplest way to make student evaluations more positive is to make it easy for students to earn a high grade. I have resisted this temptation, since I believe it is important to have high (but reasonable, of course) standards for student performance in our courses. It would be interesting to plot evaluation scores vs. average grade in each of our classes. Though I cannot know, I suspect that the courses I teach would receive relatively high evaluations for the average grade earned; I would interpret this as evidence that the courses are challenging and rewarding.

I have also taught Ecology at the University of Michigan Biological Station every spring for the past 25 years. Peggy Meade, who compiles student evaluations for all spring and summer courses at UMBS, describes the evaluations for my course as “off the charts” (evaluations available on request).

I have been fortunate to secure over $8,200,000 in support of teaching and training of undergraduate and graduate students. Together, these grants have been active for a total of 40 years. On all but one of these grants, I was the primary author, though for political reasons I usually was a co-PI. They include:

- NSF Course Curriculum and Laboratory Improvement (for BIOS 1620 labs)
- NSF Course Curriculum and Laboratory Improvement (for WMU First Year Experience)
- NSF Research Experience for Undergraduates (REU)
- NSF Integrative Graduate Education and Research Training (IGERT)

Teaching and learning occurs both in and outside of the classroom. I have invested significant time and energy expanding my teaching to include audiences in addition to the students in my assigned classes. To this end, I have given:

- at least 20 guest lectures (usually about some aspect of climate change) in at least 10 classes in the departments of Chemistry, Physics, Environmental and Sustainability Studies, Food and Consumer Sciences, English, Sociology, Geosciences, Anthropology, First Year Experience, and Biological Sciences,
- at least 80 public talks, also about various aspects of climate change, to a wide variety of audiences ranging from Kalamazoo Rotary to Mattawan Middle School to the Cleveland Museum, and
- an 8-week Lifelong Learning climate change course.

I am also a co-founder of the WMU Interdisciplinary Climate Change Working Group. We recently put together a new Climate Change Studies minor, which will be offered to all WMU students starting Fall 2015. I would be happy to provide a list of our group’s many other accomplishments.

Again, I would like to thank you for considering me for this award.