Teaching statement by Laura De Carli

The opportunities to teach and work with students and to develop new educational materials are a large component of my profession. I truly love teaching and interacting with students. I never feel more energized than after a class that has gone well. I also feel that teaching is something I can rightly be proud of. I strongly believe that being a successful teacher is an essential complement to being a successful researcher, and I feel that all mathematics, whether it is basic calculus or cutting-edge research, loses its meaning if it is not shared.

Teaching experience and philosophy. I have 20+ years of teaching experience in Italy and in the US. In addition to classes taught at FIU, I have also taught classes at the University of Napoli “Federico II” (Italy), at the Univ. of Missouri-Columbia, and at DePaul University.

I consider myself a good teacher. I am always well prepared for class and try to make my lectures engaging by inserting trick questions, remarks about the history and the applications of a certain theorem and jokes. Students do not often say that my classes are easy, but they always say that my classes are good. I set high standards and clear rules, and try to impart a good work ethic on my students. I clearly explain what I expect in terms of homework, tests, and class behaviour, and I enforce my rules. I give my students hard homework, and my tests are never easy, but I am always available (either in person or by e-mail) when they ask for help. And students who do well in my classes usually out-perform their peers in other Math. classes.

I believe one of the main qualities of being a good teacher is to be able to empathize with one’s students. I always make a point to memorize my students’ names, and I am invariably patient and sympathetic when they share personal problems with me. Spanish-speaking students love to chat with me in their mother language. I am always willing to spend extra time with my students if they need extra help. I usually hold review sessions before exams and prepare review sheets for the students to work on. Years ago Tadeusz Iwaniec, a professor at Syracuse Univ., told me that students care for learning when you care for them. This is a lesson I never forgot.

Courses developed. In recent years, the number of Math. majors and graduate students in Mathematics has increased considerably; more importantly, their level has increased too, and more and more of our students are planning to pursue a Ph.D. Mathematics. To meet the students’ demand for new advanced classes in analysis, I have developed Functional analysis (MAA 4504) and Fourier analysis at graduate and undergraduate level, (MAP 4412 and MAP 5415).

I have also developed and re-designed classes of History of sciences. Years ago History of Mathematics (MHF 3404) was considered un-inspiring and weak in Mathematical content, and was often cancelled for lack of enrolment. When I started teaching it, I changed the textbook and added new topics to
the program. I use educational videos, and often invite colleagues from other Departments for guest lectures. My lectures often include topics for discussion and connections between ancient problems and current research trends. Now students love History of Mathematics. Sometimes they bring their significant others and their friends to my lectures. My students’ enthusiasm motivated me to develop "Topics in the history of modern mathematics" (MHF 4401), a journey through the theory of gravitation from Galileo to Einstein. I have recently redesigned the program of MHF 3404 and MHF 4401 according to the "Global Learning for Global Citizenship’s" Quality Enhancement Plan. I have also developed a graduate version of "Topics in the history of modern mathematics". In the Fall 2011 I have offered this class experimentally, but I plan to submit a proposal to make it permanent during the Fall.

Two years ago I developed an interdisciplinary Summer colloquium in history of modern sciences for liberal arts students (IDS 4920). The main theme of this class is the history of gravitation, from Galileo to Einstein. I had never taught students with almost no mathematical background before, but after some initial trepidation the class went really well. Students who initially complained that "the physics problems were too hard", ended up with A’s and B’s, and sent me the most complimentary e-mails at the end of the Summer term. I have taught IDS 4920 for two consecutive Summers and I hope to teach it again.

Mentoring and advising. I have been a mentor to many students in Italy and in the US. I have written countless letters of recommendations for graduate and undergraduate students, and I have helped several of them to choose schools where to apply for a Ph.D. program. I believe that personal work with students is most important for retaining and stimulating good students and crucial in maintaining a vital graduate program. Our master program is now attracting domestic and international students of good level who are motivated to continue their studies in Mathematics. Until a few years ago, the large majority of our students elected to earn their master degree with 30 graduate credit hours, but in recent years more and more students are choosing to work on a master project. The completion of an original research project is not a requirement for our master degree, but I require my students to start reading research papers and start working on a problem after two semesters of coursework.

My first student, Anudeep Kumar, is now a Ph.D student at the George Washington Univ.; the results in his master project are part of a recently published joint paper. Zhongyuan Hu, my second student, completed her master project in August 2013 and has started graduate studies in Economy. We have just submitted our first joint paper. Recently, Santosh Patash has asked me to supervise his Master project. He expects to graduate at the end of the Spring 2014.