Lance Littlejohn's Teaching Philosophy

As most of my past students will attest to, I am very demanding of my students but not unfairly demanding. I work hard at teaching, and I am as passionate about my teaching as I am about my research. I expect my students to work hard in return.

Most of us cannot do mathematics simply by watching someone else do mathematics - likely, you have heard the old (but very true) cliche "mathematics is not a spectator sport". Mathematics was, is, and always will be difficult for most of us - the only way to understand the subject properly is to study hard (and often) and work lots and lots of problems (repetition is good!). Don't be fooled by gimmicks or trends (there are plenty out there!) that pretend to make aspects of the subject 'easy'; if you really want to learn mathematics, it usually involves tremendous effort and hard work. To loosely paraphrase Euclid "*There is no royal road to understanding mathematics*".

In all of my classes that I teach, I do provide a detailed syllabus with assigned problems at the end of each section covered. However, I do not collect homework from students. It is my feeling that once students enter the university, they should be responsible and mature enough to make sure that these assignments are completed. I do give weekly quizzes as my way of keeping the students up to date with the course material.

In most of my courses, I will not allow the use of a calculator. There are some very interesting, assigned problems, designed for a calculator, on your syllabus that I recommend the students work and solve. Certainly, I do not want to underscore the value of a calculator; it is an exceptional tool for applying many mathematical algorithms (like Simpson's Rule, Runge-Kutta methods, etc.). I do, however, want my students to concentrate on having a better understanding of prerequisite mathematics and to focus on improving their mental arithmetic skills. While it is true that "calculators are powerful tools for discovering and understanding concepts", I have noticed that the algebraic, geometric, and trigonometric skills of students have greatly suffered as a result of, I believe, an over-dependence on calculators. In fact, in my forty years of teaching, I have never seen poorer skills in these areas from our students (I certainly do not want to be offensive or insulting to my students - or any other student - by making this statement; I mention this merely as an observation that I find quite alarming). I expect students to know how to compute, for example, $\sin(30^\circ)$ without having to consult their calculator for the answer. Furthermore, I find it disturbing that many students these days can no longer sketch, without using their calculator, a simple rational function. In my undergraduate classes, as a prerequisite, I expect students to be able to graph such rational functions, factor simple polynomials, simplify algebraic expressions, and know the fundamentals of trigonometry - all without using a calculator!

Lastly, there is a very interesting article that I recommend all mathematics students read; please click here to view this one-page PDF document. This article, entitled "Telling the Truth", was written by Steven Zucker of Johns Hopkins University and it deals with problems that students encounter when entering university. As noted in this article, the "*biggest difference between high school and college will lie in your math and science courses*". Read it and find out why!