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TEACHING GOALS

My specific teaching goals include:

- **Presenting Real Life Applications**
- **Incorporate Interdisciplinary Aspects**
- **Encourage Independent Discovery**

Many stereotypes about mathematics exist, and unfortunately one of them is that beyond balancing a checkbook, math is something not used in “Real Life”. Of course the truth is that math can be applied to almost everything. One can relate fractions with wrench sets, surface area with fuel tank construction, percentages with bank accounts, sine waves with sound, and step functions with birthdays. I incorporate these and other “Real Life” mathematical applications into my teaching. The possibilities are endless and the examples help students gain intuition and enthusiasm.

Interdisciplinary skills increase career options. Knowing mathematics is sometimes not enough to gain employment in industry. One must be familiar with how math is applied in other fields, as well as knowing the accompanying terminology. Other career skills that are not emphasized in most math classes are working in groups and presenting results in an interesting and understandable way. With this in mind, I assign groups projects in lieu of a final in upper division courses. Teams write a paper about and present to their classmates a topic relating the math they’ve learned in the course to a field other than mathematics. This has been very successful. Not only are teamwork and presentation skills developed, but also research and scholarly writing skills. Because of the presentations, everyone in the class benefits from each other’s work.

Occasionally math is put on a platter and just handed to the students: here are the formulas; when this type of problem is asked, do this; etc. While mastering basic math skills is extremely important, mathematics also involves asking questions other than those conveniently provided at the end of each section. To encourage this process, I will have additional homework assignments such as those below.

- *Ask and answer your own questions about ...*
- *Where are ... used in our world?*
- *Experiment with the formula ... and ask yourself three ‘what happens if’ questions.*

As students ask questions beyond how to do homework problems, they will gain a greater vision of mathematics and experience the excitement of discovery.

Working toward these goals is a privilege because I love learning about a wide variety of fields as I search for applications and interdisciplinary topics. Just as rewarding is seeing students come alive with mathematics.