

## Note To Instructors

Over the past 20 years, as *pre-collegiate* math textbooks moved toward theory and away from math computation, students have arrived in our classes increasingly less prepared to solve *calculations* in the physical sciences.

In retirement, I have been working on an experiment to increase the *class time* available to instructors to teach chemistry (as opposed to math). The goal of the ChemReview lessons is to provide assignments that review calculation fundamentals, in a format that students can comprehend and complete outside of and before lecture.

For students with background in a topic, the lessons provide a quick review. In areas where there are gaps in preparation, the lessons teach the topic. By reviewing fundamentals before lecture, students arrive in class *prepared* for higher level work.

During 2008, these tutorials were recommended to students in first-year chemistry at over 50 colleges and universities, including Brown, Illinois, Oklahoma State, Rowan, Tennessee, Texas A&M, and Wyoming.

In some cases, instructors recommended the ChemReview tutorial as a resource for students seeking additional help. In others, instructors assigned the lessons as preparation for lecture. Among those instructors, the consensus was that “on tests, most B’s moved to A’s, most C’s to B’s, and most D’s to C’s (but not much changed in F/W’s).”

Hopefully, those results indicate progress in developing more majors in chemistry and the sciences.

By assigning the tutorials as preparation for lecture, instructors report that they gained additional time in lecture for advanced topics, in-class problem solving, and demonstrations.

For the tutorials to work as class preparation, it is recommended that a short quiz on each tutorial topic be announced and administered on the due date for the assignment: a date close to the date that you start the topic in lecture. Draft quizzes on the tutorials in an MSWord format are available from ChemReview by email upon request.

The current tutorials come with caveats.

- The lessons are focused on *calculations*. They are not intended as a complete course in chemistry.

- The “self-learning” tutorial format is paper intensive (unless students work from the screen).
- The lessons continue to be revised based on evaluation by instructors, so they have not yet been professionally edited.

All lessons may be printed by students -- or printed for class use by instructors -- from the website at *no* cost. Permission to copy is posted on the website.

For more extensive use, inexpensive paperback versions of the tutorials are available as *Calculations in Chemistry*. Order information is on the website.

Our nation needs more majors in science, math, and engineering. Chemistry is the gateway to these rewarding careers. I hope that these lessons may assist in your important work.

Sincerely,

-- E. A. Nelson

Please contact [EANelson@ChemReview.Net](mailto:EANelson@ChemReview.Net) if you have questions, suggestions, or concerns.