962-I1-308   **William P Abrams** (`babrams@longwood.lwc.edu`), Department of Mathematics and Computer Science, Longwood College, 201 High Street, Farmville, Va. 23909. *Banach-Tarski in Senior Seminar.*

The Longwood College Senior Seminar is mostly a math history course. Teaching the students history allows us to tie together various branches of mathematics, give the students interesting problems to work on, and put everything in perspective before graduation. Originally I attempted to satisfy these goals in a topics course whose theme was mathematical modeling. It worked better for me than for the students, but there are still a few topics from the old class that I still try to teach. One of them is the Banach-Tarski Paradox.

As a text I use Stromberg's *The Banach-Tarski Paradox* (Amer. Math Monthly (1979) 151-161) which is an elementary exposition. I believe that covering this Theorem serves a number of purposes, aside from entertaining the instructor. For example, it serves as a review of linear algebra and group theory through the geometry of $\mathbb{R}^3$. It also gives the students some exposure to pure mathematics outside of the classes required for a mathematics major at Longwood. In fact, the only material covered that all mathematics majors are required to see is linear algebra and trigonometry.

When I first started teaching this lesson, I do not believe that the students got much out of it. Since then, I have designed a series of worksheets, done cooperatively, to reinforce the concepts involved in the statement of the theorem and the concepts used in the proof, such as *norm, bounded, group, ball, transcendental, partition, equivalence, rotation,* and *rigid motion*. I try to present various concepts and theorems in class, then give the students the worksheet designed to help them understand. Of necessity, the worksheets are on a much lower level than the text. I plan on doing some assessment of this lesson during the Fall 2000 semester. (Received September 08, 2000)