

Using a Graphing Calculator to Teach Probability and Statistics

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Abstract

This paper explains how I use TI graphing calculators to teach probability and statistics. Examples of their capability and a list of resources I have developed are included.

Introduction

This paper is essentially the one-hour talk that I delivered at the [Arkansas Conference on Teaching](#) in Little Rock in November 1999. Starting spring 2000, the [Henderson Mathematics](#) and [Computer Science](#) Department will have a computer classroom, and I plan utilize it to teach our introductory statistics course, [Statistical Methods](#). I plan on using the software [SPSS](#) and [Maple](#) instead of graphing calculators. I wanted to put my thoughts on paper about how I utilize graphing calculators in my [probability](#) and [statistics](#) classes, and the course materials I have developed for the past six years while it is fresh in my mind.

For the high school teacher reading this paper, I will answer any questions you have via email (lloydm@hsu.edu), and I can fax you any handouts I have developed. [AP statistics](#) teachers are probably aware that is acceptable to use all of the [TI graphing calculators](#), even if they have been loaded with programs, except the [TI-92](#) on the APSTAT exam because of its [QWERTY keyboard](#).

Which calculator should the student use?

On the syllabus for the class, I suggest that the student buy a [TI-83+](#) or a [TI-86](#) if they do not already own a graphing calculator. The built-in statistics functions on the TI-83+ and TI-86 are very similar, so students with either usually have no difficulty following in class when I use the [viewscreen](#). However, the TI-83+ is easier to use than the TI-86. If students have worked with [TI-82s](#) in high school, then they can easily adapt to a TI-83+. I warn them that the [TI-85](#) is difficult to use for statistics, but the student may already own one. Although a graphing calculator does not cost much more than a few textbooks, and students will use it in several courses, I do not believe that students should have to pay for another calculator if they already own one that is powerful enough. Their calculator should be able to do matrices and list operations, so they should not get the [TI-73](#), [TI-80](#), or [TI-81](#). Some of them want to get a [TI-89](#) because it is the most powerful, but I warn them that it is also the most complicated to use, and other instructors may not allow them to use it because of its symbolic capability. It would be less of a headache for me if all the students had the same calculator, but our department does not endorse this policy. In the classroom, I will use the [TI-83](#) most of the time if most of my students

have a TI-82 or 83; similarly, for the TI-86 and TI-92.

Getting data to the students

I like to experiment with data during class time. If the sample size is large, then I do not want to spend class time waiting for the students to enter the data. Besides, it is probable that they will make a mistake entering the data, so I spend some time showing the students how to link. After a few times, most of the students catch on, and the process goes quickly. It is recommended that students bring their calculator-to-calculator link cables to class. With respect to sharing lists, the TI-82, 83, and 83+ are compatible; the TI-85 and 86 are compatible; and the TI-89, TI-92, and [TI-92+](#) are compatible. The most common mistake made when linking is not having the cable completely inserted. I distribute a handout similar to the one displayed on the right to each student and also demonstrate linking with a student. The calculator-adept students scurry about the room linking the lists to their peers.

Linking Lists

TI	Sending	Receiving
81	Can't	Can't
82	LINK/Select All - ENTER to select TRANSMIT	LINK/RE ENTER
83	LINK/List ENTER to select TRANSMIT	LINK/RECE ENTER
85/6	LINK/SEND MORE LIST SELCT to select XMIT	LINK/R
89/92	VAR-LINK F4(↵) to select F3(Link) Send	VAR-LINK F3(Link) Receive

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