

The Use of LabVIEW[®] Virtual Instruments in the Undergraduate Science Laboratory

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The graphical programming software package LabVIEW[®] (developed by National Instruments, 6504 Bridge Point Parkway, Austin, TX 78730-5039; phone (512) 794-0100) has made the concept of the virtual instrument (VI) a practical reality. The King's University College has adopted LabVIEW[®] as the standard software for data acquisition and analysis purposes in its science laboratories. In the biology department we have developed VI's for such instruments as spectrophotometers, syringe pumps, pH meters, respirometers, and various other instruments commonly used in the undergraduate laboratory. All these virtual instruments control a particular piece of equipment, and acquire, store, and analyze the data. Some virtual instruments take the students step-by-step through particular experiments. In addition, we are using LabVIEW[®] VIs to model such processes as enzyme kinetics, species interaction, and carbon exchange rate. Each of these VIs has been designed in such a manner that a student is able to vary the input parameters conveniently and is able to observe the resulting response immediately. The LabVIEW[®] software is used extensively to develop virtual instruments for use in student research projects.

Reprinted From: Bestman, H. D. 1998. The use of Lab VIEW[®] virtual instruments in the undergraduate science laboratory. Page 361, *in* Tested studies for laboratory teaching, Volume 19 (S. J. Karcher, Editor). Proceedings of the 19th Workshop/Conference of the Association for Biology Laboratory Education (ABLE), 365 pages.

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