1003-B1-354   **Alexander Stanoyevitch*** (`alex@math.hawaii.edu`), Division of Mathematical Sciences, University of Guam, UOG Station, Mangilao, GU 96923. *A Multifaceted Introduction to Probability.* Preliminary report.

In standard calculus-based probability courses given at many universities and colleges, students often have difficulty coming up with and gaining confidence in the delicate symbolic manipulations and combinatorial methods needed to solve problems. I would like to propose supplementing the traditional approach to include the following two additional approaches for solving or approximating probabilities: Either by (i) running simulations or by (ii) making use of computer loops to count numbers of outcomes or perform symbolic computations. The former approach (i) is useful when exact answers are difficult or impossible to obtain. The brute force counting method works well if the sample spaces are not too large, or can be used to run experiments for general theoretical claims. Symbolic manipulations of series (finite and infinite) and integrals are necessary in numerous probability methods of both continuous and discrete character. The MATLAB software is very well suited for such diverse approaches. In the former approach it is better to use floating point arithmetic since this will permit a very large number of trials to run and produce accurate estimates. In the latter case, symbolic capabilities may be preferable since an exact answer might be possible or required. (Received September 12, 2004)