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A Course in Computational Physics GEORGE RAWITSCHER, University of Connecticut — The purpose of this undergraduate course, is 1) to familiarize the student with a tool like MATLAB for solving homework problems in other courses, or qualify for a job later on. And 2. to understand accuracy and suitability properties of the algorithms used. Rather than emphasizing numerical techniques, the focus is on physics problems, such as: the decent of a parachute, the oscillation of a pendulum for large angles, the vibrational modes of a clamped inhomogenous string, and least square fitting. These are coupled with a discussion of numerical algorithms such as the comparison of various types of quadratures, properties of basis functions for expansions, including Chebyshev polynomials and Sturm-Liouville functions, matrices, their eigenvalues and singular value decompositions. Examples will be presented in this talk, a manual is in preparation.

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