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Learning calculus is not a passive activity. As university resources continue to be stretched, section sizes have increased and grading support has declined. With limited resources, more courses are making use of computer-based homework systems. Unfortunately, most of these systems still have pedagogical limitations.

Maplets for Calculus (M4C) is an electronic study guide that consists of 129 customized applets for specific topics in precalculus, univariate calculus and multivariate calculus. Each applet presents an algorithmically-generated problem, requires correct intermediate responses before moving on to the next step, employs computer algebra to analyze student responses and provides customized hints and feedback. Graphics (2D, 3D, animation and stereo) are used whenever possible to reinforce the symbolic mathematics. In short, M4C is a “tutor without the tutor”.

Students appreciate the step-by-step guidance through problems and the way algebraic, graphic, numeric and verbal approaches support diverse learning styles. Instructors like the interactions that arise when students in a lab have different versions of similar problems and frequently use the applet graphics as lecture demonstrations. Initial assessment of M4C’s effectiveness is underway. (Received September 21, 2010)