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Matthias Kawski* (kawski@asu.edu), School of Mathematical & Statistical Sciences, Tempe, AZ 85044. *Control and interactive visualization in DE courses*. Preliminary report.

We argue that with the advent of ubiquitous modern computing technology we need to ask new, more engaging questions that, both, present meaningful problems, and allow to better assess whether learning outcomes have been met. At many levels, natural candidates are inverse problems. In differential equations courses, standard questions from control theory are immediate candidates. E.g., instead of predicting how a system will behave in the future, which is comparatively trivial with technology, we ask, how can we make the system behave in a desired way. We present new model examples for this approach, and support this with innovative uses of modern computing technology for interactive visualization. An important aspect of this program is the prospect of better engaging groups of students who traditionally have been underrepresented in such technical courses. (Received September 11, 2013)