1056-BD-1824   **Candace M Thille*** (`cthille@cmu.edu`), 5000 Forbes Avenue, Pittsburgh, PA 15213. *Evidence Based Course Design – The Open Learning Initiative at Carnegie Mellon.*

Using intelligent tutoring systems, virtual laboratories, simulations, and frequent opportunities for assessment and feedback, the Open Learning Initiative (OLI) at Carnegie Mellon builds dynamic, flexible, and responsive learning environments that foster robust learning. As students work through the OLI courses, we collect real-time, interaction-level data on how and what students are learning, and we use this data to create four positive feedback loops: to the student, to the instructor, to the course design team and to the learning science researcher. In this presentation will demonstrate how we make use of expertise and methods from the learning sciences to produce high-quality online courses. We will also discuss learning studies in which results have shown that students randomly assigned to the OLI statistics course learned a full semester's worth of material in half as much time and performed as well or better than students learning from traditional instruction. (Received September 22, 2009)