Smarter Planet Sophomore Research Seminars are experimental in several respects. They are team-taught by faculty from Engineering/CS and Liberal Arts in research areas inspired by IBM’s Smarter Planet umbrella (http://www.ibm.com/smarterplanet/us/en/). The courses will be taught in the Kelly Advanced Computing Lab in the Wold Center, and faculty teaching these sections will have access to the expertise of IBM researchers. A primary goal of the Smarter Planet SRS sections is to further Union’s goal of integrating engineering and liberal education by creating new courses that cross engineering/liberal arts disciplinary boundaries.

The purpose of the Smarter Planet Sophomore Research Seminars is to provide practice in research methods in addressing important questions which include the use of data and data analysis. As with all SRS sections, students gain experience in all stages of research:

● Developing a good research topic
● Engaging with data and evidence, including both finding and evaluating evidence
● Developing evidence-based arguments
● Presenting findings and recommendations in a professional manner

Students will undertake research on energy systems, including technical, social, economic and policy aspects, with specific application to energy systems at Union College. Students will collaboratively produce a document recommending how to make Union College more energy efficient. The class final report will be included in the Wold 100-year time capsule, when the ultimate judgment of the quality of the work will be made.

Fall 2011: Energy: How Much is Enough? (Doug Klein & Cherrice Traver)

Winter 2012: Data Analytics and Ethics (Kristina Striegnitz & Mark Wunderlich)

Spring 2012: Engineered Environment (Ashraf Ghaly & Mark Walker)

This SRS will explore the technological basis for and ethical issues related to current data mining and analytics systems. Students will experiment with data mining and analytics systems and discuss real-world case studies.

This seminar will increase students’ awareness of the need to implement a sustainable approach toward managing facilities in the open environment, doing research that would ultimately identify trends and patterns leading to better design and operation of engineered facilities.