Science, and society in general, is experiencing fundamental change. First is the explosion of data inundating everything from Astronomy to Zoology. Second is the severe impact of the economic recession and the federal budget deficit. Taken together, these challenges illuminate the need for new approaches in both research and education. A number of scientists at Illinois are tackling these challenges, and in the process are creating new opportunities. As a demonstration, I will present research being done within the Astronomy department on applying machine learning tools to quantify the dark universe. I will conclude by discussing how we are rethinking our curricula to allow students to acquire the skills necessary to work in the data-rich future.