

Educating PhD students for knowledge-driven society: A course that integrates information solutions and data competency into the research process

Oliver Renn*, Jozica Dolenc, Leo Betschart, Joachim Schnabl
ETH Zurich, Chemistry | Biology | Pharmacy Information Center, Vladimir-Prelog-Weg 10,
8093 Zurich, Switzerland, renn@chem.ethz.ch

*Presenter

Universities educate students for working in knowledge-driven societies. Whereas subject-related knowledge is part of every curriculum, institutions of higher education fail to teach systematically how to utilize and benefit from today's variety of digital tools. Students and researchers are mostly unaware of what they lack to work more effectively and efficiently and to benefit from existing knowledge. Since this lack of awareness is not obvious to students and researchers (unknown unknowns; you cannot miss something that you do not know), it is difficult to convince them that there is a gap that needs to be filled.

In 2014, we decided to tackle this problem by creating and developing the course "Scientific Information Retrieval & Management in Life Sciences and Chemistry". The unique 2 ECTS course features a multi-level approach to obtain and employ scientific information and to get students information savvy. On one hand, the course demonstrates the bigger picture: We discuss the aspects of scientific writing and publishing, critical choice of data sources, patents, visualisation and design, text mining and data pipelining, knowledge generation, outreach and impact of publications. On the other hand, we highlight an extensive list of field-proven tools that can assist researchers in their daily activities.

We also wanted to foster a lasting impact on how students utilize databases, tools, software, and web services. Thus, at the end of the course students have to write an essay describing their current information workflow or their (un)met information needs. These essays confirm and explain how the students changed their information use, and which parts of the course they may have not understood. Moreover, essays that describe unmet information needs allow us to explore possible solutions and to work with our vendors. In our talk, we will share the concept for the course and report on our experiences.