Panel Title: Interdisciplinary Bioinformatics Education – Can We Make it Work?

Panel Chair: Guenter Tusch, Grand Valley State University, Grand Rapids, MI.

Panelists:
Tanya Berger-Wolf, (PhD Computer Science), Computer Science and Bioengineering, University of Illinois at Chicago, IL
Daisuke Kihara, (PhD Bioinformatics), Biological Sciences and Computer Science, Purdue University, West Lafayette, IN
Jarek Meller, (PhD Computational Chemistry), Environmental Health (Medical College), Biomedical Engineering (University), and Biomedical Informatics (Children's Hospital Research Foundation), University of Cincinnati, OH
Peter White, (PhD Molecular Biology), The Research Institute at Nationwide Children's Hospital and The Ohio State University, Columbus, OH

Each panelist will have 5 min. time for remarks, then the panelists will have an opportunity to respond to each other’s remarks and the panel will be open to questions from the audience.

Panel description:
Russ Altman defines in his introduction to the PLOS Translational Bioinformatics Collection “translational bioinformatics’ research as the development and application of informatics methods that connect molecular entities to clinical entities” (R. Altman, 2012). This applies in a more general sense to most of the field of bioinformatics. Interdisciplinary bioinformatics education can therefore be seen as the effort to teach those methods from different disciplines to students and researchers in the field of bioinformatics. This includes among others molecular biology, genomics, medicine, and computer science.

The challenges in this endeavor are the overlapping boundaries of the different disciplines contributing to translational bioinformatics, and ideally cross-trained faculty would teach those courses. On the other hand faculty belong to academic units that typically think in terms of academic silos and have a limited appreciation of interdisciplinary academic achievements. Therefore, those could potentially jeopardize academic careers. While some warn of the "Interdisciplinary Hype" (JA Jacobs, 2013), others demand interdisciplinary research and training of scientists of multidisciplinary background who combine expertise in the biological, clinical, engineering, and computer sciences.

The NIH’s Common Fund’s Interdisciplinary Research (IR) program was “to change academic research culture such that interdisciplinary approaches and team science spanning various biomedical and behavioral specialties are encouraged and rewarded”. With modern high-throughput technologies like microarrays and next-generation sequencing advancing into the clinical field, informatics and data science (“big data”) expertise becomes even more important. Some institutions have responded to this evolving need by creating dedicated centers, like the Harvard Catalyst (The Harvard Clinical and Translational Science Center) to help cross-train students and researchers.

In this panel, we want to explore interdisciplinary teaching in bioinformatics, how it can be done, how it can work, and what the challenges are for faculty teaching or moving into the field.