Table S1. Syllabus for a Data Science in Cell Imaging graduate level course for computational scientists.

Class #	Topic
1	Introduction to data science in cell imaging
2	Introduction to cell biology & microscopy
3	Bioimage analysis
4	Deep learning in microscopy
5	Deep learning in microscopy
6	Representations of cell shape and cell motility
7	Image-based high content cell phenotyping
8	Atlases and public data repositories
9	Information processing in multicellular systems
10	Importing ideas from systems biology
11	Integrating microscopy and omics
12	Misc. topics 1
13	Misc. topics 2

The course reviews the state-of-the-art in visualizing, processing, integrating and mining massive cell image data sets, deciphering complex patterns and turning them into new biological insight. Background in mathematics and programming is required. No prior biological knowledge is required; all necessary background is covered in the lectures. Prior knowledge in machine learning and/or computer vision is highly recommended, but not necessary. Misc. topics may include reusing cell image data, computer vision in cell imaging, data harmonization, integration and fusion, automated microscopy, high content simulations, and medical imaging. The syllabus is based on a course developed by Assaf Zaritsky at Ben-Gurion University of the Negev.