



Statistics and data visualization for omics

February 18-22, 2018, 08:30-16:30, University of Haifa. 40 hours, 3 academic credit points.

Coordinated by: Daniel Sher (Dept. of Marine Biology, University of Haifa)

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Guest lecturers: TBA

The increasing amount of data produced by “omics” approaches (genomes, transcriptomes, metabolomes, microbiome 16S datasets, etc.) requires specialized statistical analyses. Deciding how to analyze such data and present them in a clear, concise and eye-catching manner requires knowledge of appropriate analysis and visualization tools. Perhaps even more importantly, such knowledge is critical for the design of good experiments. In this workshop, we will learn the basic ideas behind several key statistical tools, practice their application using the programming language R, and discuss how to present such data appropriately. Some of the key topics we will discuss are:

- How to design an omics project
- Next generation sequencing platforms, library preparation and quality control (QC)
- Differential analysis (*e.g.*, differential gene expression) and linear models
- Ordination (*e.g.*, PCA), clustering, and machine learning
- Time series analyses
- Networks (*e.g.*, gene regulation networks, metabolic networks, protein-protein interactions)

The workshop is open to 24 advanced (MSc and PhD) students, postdocs and research scientists from all universities in Israel. Prerequisite courses include genetics, biochemistry, molecular biology, basic statistics and bioinformatics. Participants taking the course for academic credit are **required to register** through the secretariat of their university and to submit a final course project.

The course will be taught in English. *Limited lodging is available at the University of Haifa dormitories at a cost of approximately 45 us\$/night.*

Registration is now open - please register online at <https://goo.gl/forms/NWYGoCBRcIK9cvAq2>.

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Registration closes December 25, 2017.