

Title: Normalization and Differential Expression in RNA-Seq

Speaker: Sandrine Dudoit, Professor of Biostatistics and Statistics Chair, Graduate Group in
Biostatistics University of California, Berkeley
<http://www.stat.berkeley.edu/~sandrine>

Location: 1011 Evans Hall

Time: Nov. 17th Thursday 4-5 pm

Abstract:

This talk concerns statistical methods and software for the analysis of RNA abundance by sequencing (RNA-Seq). We first present exploratory data analysis (EDA) approaches for quality assessment/control (QA/QC) of RNA-Seq reads. Next, we propose within-lane normalization methods to adjust for sample-specific gene-level effects such as length and GC-content. We also provide between-lane normalization procedures to account for distributional differences such as sequencing depth. Finally, we consider the quantitation of (differential) gene expression levels using generalized linear models (GLM). This work was motivated by a collaboration with the Sherlock Lab on transcriptome analysis in *Saccharomyces*. Our exploratory data analysis and normalization methods are implemented in the open-source Bioconductor R package EDASeq (<http://www.bioconductor.org/>).

P.S. Sandrine has already posted this seminar to be sponsored by us on her website:

<http://www.stat.berkeley.edu/%7Esandrine/Teaching/PH292.F11/>

Directions and maps:

1) UCB campus map from UCB Statistics department website (<http://www.stat.berkeley.edu/58>), where you could see Evans Hall is highlighted in the map.

2) The driving direction to the campus is here: <http://visitors.berkeley.edu/gethere/traveling.shtml>

3) Parking map on UCB campus (visitor parking with symbol "P"):

<http://pt.berkeley.edu/sites/pt.berkeley.edu/files/content/NewPadMap2011.pdf>

4) Public transportation to UCB campus:

BART @Downtown Berkeley station (Exit the Berkeley station at Center Street. Walk east on Center Street for 1 block to the campus)

AC Transit: several AC bus lines that stop at the campus at the intersection of Bancroft Way and Telegraph Avenue such as lines: #1; #1R; #7; #49; #51B; #52; and F.

The SF Bay Area Chapter does not schedule a seminar in December. However, this year, we have arranged to co-sponsor a seminar with [Stanford Biostatistics on Thursday December 1](#) from 1:15 to 3:00 pm.

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