

Algorithms in Genome Research
Winter 2009/2010

Exercises

Number 10, Discussion: 2010 January 15

1. Find and discuss a few real-life examples where both systematic and stochastic noise occur.
2. With the t-statistic you can calculate the significance of differential gene expression. In the case of a small sample set the moderated t-statistic is used, see Section 3 in G.K. Smyth: Linear Models and Empirical Baye Methods for Assessing Differential Expression in Microarray Experiments. *Statistical Applications in Genetics and Molecular Biology* **3**(1), Article 3. Explain what the moderated t-statistic is and why it is reasonable.
3. A p-value (uncorrected) of 0.01 for testing differential expression means . . .
4. List some global and local normalization methods and some of their properties.