Crash Course in Statistics for Neuroscience Center Zurich University of Zurich

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Solutions to Exercises Chapters 6-8 (only those, where result is a number)

If you have further questions: jobs@math-jobs.com or 076 392 03 20 or in class.

6.1: 95 %: $[11.77, 12.51]$ and 99 %: $[11.65, 12.63]$

6.2: only 95 %: $[11.75, 12.53]$, broader, because we used heavy tail t-distribution

6.3: only 95 %: $[0.1216, 0.1384]$

7.1: test always of type: accept $\mathcal{H}_0$ as soon as $x_1 < 1.64$; otherwise reject it; in particular then β is a) 0.74, b) 0.36, c) 0.09 and d) 0.01.

7.2: I would do it one sided. t-value is -1.955: 2.5 % accept $\mathcal{H}_0$, at 5 % reject $\mathcal{H}_0$, using a t_{50}-distribution

7.5: a) $t = -0.4932$; accept $\mathcal{H}_0$; same in b)

7.6: Test-Statistic has value of 56.2341; highly significant!

8.1: $\hat{\beta}$ becomes $\sum x_i y_i / \sum x_i^2$ and $\hat{\alpha}$ becomes 0.

8.2: $\hat{\beta}$ becomes the correlation between x's and y's. Regression has a lot to do with correlation!

8.3: a) 0.7, b) 1.286, c) 0.03886, d) test statistic has value 3.451; which is significantly different from 0.