

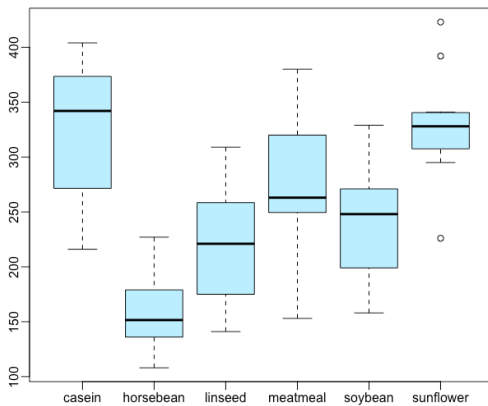
Spring 2018 Bioinformatics Modular Courses in CMSE

Jan 8 - Jan 31

CMSE 890: Sec 301

Programming for Bioinformatics

- Use RStudio and R Notebooks to execute programs
- Implement file input/output, loops, control statements, and functions in R
- Import and use external R packages
- Manipulate data and make multiple types of plots

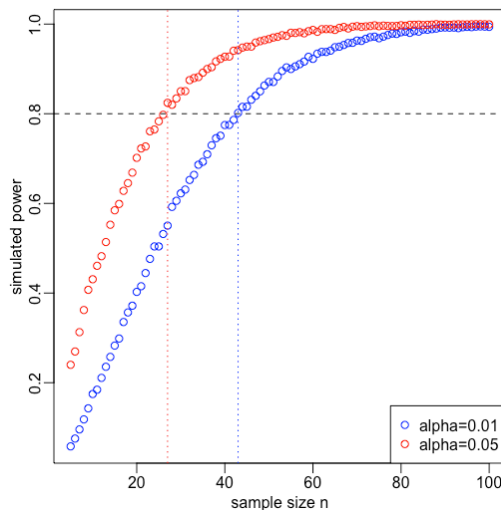


Feb 12 - Mar 14

CMSE 890: Sec 302

Statistical Analysis and Visualization

- Summarize data using statistics and plots
- Use common continuous & discrete distributions
- Perform hypothesis testing and interpret p-values
- Learn and perform multivariable data analysis (regression, clustering, & PCA)



```
#!/bin/bash
#PBS -o /mnt/scratch/netid/CMSE890303
#PBS -l nodes=1:ppn=1,walltime=8:00:00

cd /mnt/scratch/netid/CMSE890303

module load FastQC/0.11.5

base='SRR2012209'

fastqc $base'_1.fastq.gz'
fastqc $base'_2.fastq.gz'
```

Mar 26 - Apr 18

CMSE 890: Sec 303

Intro to Data Handling

- Download and organize data files using Unix/HPCC
- Modify huge data files with sed/grep/awk
- Use bash scripts to automate tasks
- Modify/reformat/combine files with Python

Mondays and Wednesdays 3:00 - 4:50 pm (location TBA)

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