

EECS 730: Introduction to Bioinformatics Final Exam

The final exam of this course consists of an in-class oral presentation (**15 min presentation + 5 min Q&A**) and a take-home assay. You are expected to select one of the following topics (or any bioinformatics-related topics you want; please contact instructor for consent), independently conduct literature study, and independently write a mini-review on the topic you selected. The mini-review should have **no less than 3,000 words**.

The in-class oral presentation is scheduled on **December 1st, 6th, and 8th, 2016**. It counts for **10%** towards the final grade.

The mini-review is due on **Dec 16th, 2016**. Please submit your mini-review (in PDF format) by emailing the instructor at cczhong@ku.edu with a title "**EECS 730 final submission**". Please send your review through KU email accounts. It counts for **20%** towards the final grade.

Here is a collection of topics for the final:

(Again, notice that you are allowed to select another topic if none of the following topics interests you; please contact the instructor for consent if you wish to choose an alternative topic.)

- Stochastic context-free grammar and RNA secondary structure modeling (assigned to QiaoZhi Wang)
- RNA 3D structural motif search and clustering
- RNA-RNA interaction prediction
- RNA-protein interaction prediction
- Sequence motif finding problem
- Phylogenetic tree reconstruction
- Burrows-wheeler transformation (BWT) in fast sequence alignment
- Genome-wide association study (GWAS) (assigned to Sirisha Thippabhotla)
- *De novo* sequence assembly
- Epigenetics and CHIP-seq (assigned to Paul Kline)
- Metagenomics and metatranscriptomics
- Biological pathway and network analysis (assigned to Hao Xue)
- Mass spectrometry and proteomics (assigned to Aime De Burner)
- evolutionary arms race between transposons and genome defense provided by natural selection and piRNA pathway (assigned to Xi Chen)
- Gene ontology (assigned to Kristopher Goering)

Please send email to instructor at cczhong@ku.edu to reserve your topic; topics are assigned in a first-come-first-serve fashion.