

BIOL 794: Computational biology colloquium

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- Office hours: Th 3-4

Course goals:

- Gain a working knowledge of current research in Computational Biology and Bioinformatics
- Present papers published in Computational Biology or Bioinformatics conferences and journals.

Prerequisites: Basic knowledge of data structures, algorithms, heuristic search methodologies, and bioinformatics.

Course description: The first lecture will consist of some background material on bioinformatics for those not so familiar with the field. Lecture notes will be handed out. Following lectures will be student presentations. Each student must present at least two papers to earn a pass grade. Each presentation must be 30-40 minutes and must have the format of background and motivation, computational methods, results, and discussion.

Journals and conferences: Following journals and conferences may be used to find papers:

- Bioinformatics
- BMC Bioinformatics

- PLoS Computational Biology
- Journal of Computational Biology
- Journal of Bioinformatics and Computational Biology
- Intelligent Systems for Molecular Biology (ISMB)
- Research in Computational Biology (RECOMB)
- Pacific Symposium on Biocomputing (PSB)
- Computational Systems in Bioinformatics (CSB)
- Bioinformatics and Bioengineering (BIBE)
- Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)

Textbooks: The following textbooks are recommended.

- Algorithms on strings, trees, and sequences: computer science and computational biology, Dan Gusfield
- Introduction to computational molecular biology, Setubal and Medianis
- Introduction to bioinformatics, Arthus Lesk
- Introduction to Algorithms, Cormen, Leiserson, Rivest, and Stein
- Computational molecular biology, Pavel Pevzner and Neil Jones
- Biological sequence analysis: probabilistic models of proteins and nucleic acids, Durbin et. al.
- Protein bioinformatics, Eidhammer et. al.
- Introduction to computational biology: maps, sequences and genomes, Michael Waterman

All the textbooks are available from the NJIT library and from Amazon as well.

Cheating The NJIT Honor Code will be upheld and any violations will be brought to the immediate attention of the Dean of Students

Changes to syllabus Students will be consulted and must agree to any modifications or deviations from the syllabus throughout the course (major deviations are not expected).