



# Introductory Workshop on Bioinformatics

## Course #: GCBA 902, Spring 2011

**Instructor:** Babu Guda, Ph.D.

**Course:** GCBA 902 (1 credit)

**Grading:** Letter grade (40% midterm, 60% final)

**Dates/Time:** 2/11, 2/18, 2/25 & 3/4/11, 9:00 AM – 1:00 PM

**Location:** 2037 Swanson Hall

**Max. Limit:** 16 students (offered again in Fall, 2011)

**Contact:** Dr. Guda at 559-5954 ([babu.guda@unmc.edu](mailto:babu.guda@unmc.edu))

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This course will provide an overview of various bioinformatics tools and databases, and covers fundamental concepts in searching biological databases, performing sequence alignments and microarray analysis. This is a lab-equipped course, where participants will be trained hands-on to become expert users of important data analysis tools and databases related to bioinformatics research. Basic understanding of biology is expected but no programming knowledge is necessary. Please bring your own laptop.

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### Topics and Schedule:

- Week-I (2/11/11)
  - Introduction to bioinformatics
  - Introduction to biological databases
  - Concepts in database searching
- Week-II (2/18/11)
  - BLAST and FASTA algorithms
  - Using different flavors of BLAST tools (blastn, blastp, blastx, tblastn, tblastx)
- Week-III (2/25/11)
  - Multiple sequence alignment, using ClustalW, T-Coffee
  - Profile methods, using PSI-Blast, PHI-Blast and RPS-Blast
- Week-IV (3/4/11)
  - Introduction to microarray technology (Guest lecture by Dr. Eudy/GCBA)
  - Microarray data analysis methods (Guest lecture by Dr. Yu/Biostatistics)
  - Introduction to structural bioinformatics