

BIOINFORMATICS

INTRODUCTION TO BIOINFORMATICS

Suggested Readings

Attwood TK & Parry-Smith DJ. 2003. *Introduction to Bioinformatics*.

Pearson Education.

Rastogi SC, Mendiratta N & Rastogi P. 2004. *Bioinformatics: Concepts, Skills and Applications*. CBS.

ADVANCED BIOINFORMATICS

Suggested Readings

Baxevanis AD & Ouellette BFF. 2001. *Bioinformatics: a Practical Guide to the Analysis of Genes and Proteins*. Wiley Interscience.

Mount DW Cold. 2001. *Bioinformatics: Sequence and Genome Analysis*.

Spring Harbor

Stekel D. 2003. *Microarray Bioinformatics*. Cambridge University Press.

Tomita M & Nishioka T. 2005. *Metabolomics: The Frontier of Systems Biology*. Springer Verlag.

Wong SHY. 2006. *Pharmacogenomics and Proteomics: Enabling the Practice of Personalized Medicine*. American Association for Clinical Chemistry.

TECHNIQUES IN BIOINFORMATICS

Suggested Readings

Software Manuals and Help files

BIOLOGICAL CHEMISTRY

Suggested Readings

Geoffrey LZ, Michael Gregory E & Sitz T. 1997. *Biochemistry*. McGraw-Hill.

Nelson DL, Cox MM & Ocorr MOK. 2005. *Lehninger's Biochemistry*. WH Freeman & Co.

Voet D & Voet JG. 1997. *Biochemistry*. John Wiley & Sons.

STATISTICS FOR BIOINFORMATICS

Suggested Readings

Gupta SC & Kapoor VK. 2000. *Fundamentals of Mathematical Statistics: A Modern Approach*. S. Chand & Co.

Warren JE & Gregory RG. 2005. *Statistical Methods in Bioinformatics*.

Springer.

CONCEPTS IN COMPUTING

Suggested Readings

David FR. 1997. *Procedural Elements for Computer Graphics*. WCB/McGraw-Hill.

Foley JD & Van Dam A. 1982. *Fundamentals of Interactive Computer Graphics*. Addison-Wesley.

James FK & Keith WR. 2006. *Computer Networking: A Top-Down Approach Featuring the Internet*. Prentice Hall.

Siever E. 2005. *Linux in a Nutshell*. O'Reilly.

PROGRAMMING LANGUAGES FOR BIOINFORMATICS 2+2

Objective

Suggested Readings

Brian WK & Ritchie DM. 1988. *C Programming Language*. Prentice Hall.

Kanetkar. 2002. *Let us C*. BPB Publications.

Microsoft Developers Network (MSDN Digital Library). 2006. Microsoft.

BASIC MOLECULAR BIOLOGY

Suggested Readings

Gupta PK. 2003. *Cell and Molecular Biology*. 2nd Ed. Rastogi Publications.

Lodish H. 2003. *Molecular Cell Biology*. 5th Ed. W.H. Freeman & Co.

Zhang MQ & Jiang T. 2002. *Current Topics in Computational Molecular Biology*. MIT Press.

MATHEMATICS FOR BIOINFORMATICS

Suggested Readings

Babu CA & Seshan CR. 2006. *New Engineering Mathematics*. Narosa Publishing House.

Datta KB. 2002. *Matrix and Linear Algebra*. Prentice Hall.

Narayan S. 1980. *Matrix Algebra*. S Chand & Co.

Rao S. 2006. *Numerical Methods for Scientists and Engineers*. Prentice Hall.

GENETICS & IMMUNOLOGY

Suggested Readings

Johnson RL. 2006. *Genetics*. Twenty-First Century Books.
Male D. 2003. *Immunology*. Open University Worldwide.
Stansfield WD. 2002. *Genetics*. McGraw-Hill.

INTRODUCTION TO DATABASE SYSTEMS

Suggested Readings

Date CJ. 1986. *Introduction to Database Systems*. Addison-Wesley.
Korth H & Silberschatz A. 2002. *Database System Concepts*. McGraw-Hill.
Martin D. 1986. *Advanced Database Techniques*. MIT Press.

COMPUTATIONAL & SYSTEM BIOLOGY

Suggested Readings

Fall CP. 2002. *Computational Cell Biology*. Springer.
Tsai CS. 2003. *Computational Biochemistry*. John Wiley & Sons.
Waterman MS. 1995. *Introduction to Computational Biology: Maps, Sequences and Genomes*. CRC Press.

BIOMOLECULAR SEQUENCE ANALYSIS

Suggested Readings

Baxeavanis AD & Ouellette BFF. 2001. *Bioinformatics: a Practical Guide to the Analysis of Genes and Proteins*. Wiley Interscience.
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Mount DW. 2001. *Bioinformatics: Sequence and Genome Analysis*. Spring Harbor, CSHL Press.
Nei M & Kumar S. 2000. *Molecular Evolution and Phylogenetics*. Oxford University Press.
Salemi M & Vandamme AM. 2003. *The Phylogenetic Handbook – A Practical Approach to DNA and Protein Phylogeny*. Oxford University Press.

DYNAMIC WEB-DESIGN

Suggested Readings

Moorhouse M & Barry P. 2004. *Bioinformatics, Biocomputing and Perl: An Introduction to Bioinformatics*. John Wiley & Sons.
Tisdall JD. 2001. *Beginning Perl for Bioinformatics*. O'Reilly.

BIOLOGICAL DATABANKS & DATA MINING

Suggested Readings

Letovsky S. (Ed).1999. *Bioinformatics: Databases and Systems*. Kluwer.
LeŪn D & Markel S. 2003. *Sequence Analysis in a Nutshell: A Guide to Common Tools and Databases*. O'Reilly.
NCBI(www.ncbi.nlm.nih.gov).
PUBMED (www.pubmedcentral.nih.gov) and database web-sites.

MOLECULAR MODELLING AND DRUG DESIGN

Suggested Readings

Bunin BA. 2006. *Chemoinformatics: Theory, Practice and Products*. Springer.
Gasteiger J & Engel T. 2003. *Chemoinformatics: A Textbook*. Wiley-VCH.
Hinchliffe A. 2003. *Molecular Modelling for Beginners*. John Wiley & Sons.
Leach AR. 1996. *Molecular Modelling: Principles and Applications*. Longman.

COMPARATIVE AND FUNCTIONAL GENOMICS

Suggested Readings

Azuaje F & Dopazo J. 2005. *Data Analysis and Visualization in Genomics and Proteomics*. John Wiley & Sons.
Jollès P & Jörnvall H. 2000. *Proteomics in Functional Genomics: Protein Structure Analysis*. Birkhäuser.

PHARMACOGENOMICS & IPR

Suggested Readings

Blalock EM. 2003. *A Beginner's Guide to Microarrays*. Springer.
Catania M. 2006. *An A-Z Guide to Pharmacogenomics*. American Association for Clinical Chemistry.
Chakraborty C & Bhattachary A. 2005. *Pharmacogenomics*. Biotech Books.
Stekel D. 2003. *Microarray Bioinformatics*. Cambridge University Press.

List of Journals

Bioinformatics - Oxford University Press
BMC Bioinformatics - BioMed Central
Briefings in Bioinformatics - Oxford University Press
Briefings in Functional Genomics and Proteomics - Oxford University Press

Computers in Biology and Medicine – Elsevier

Journal of Bioinformatics and Computational Biology (JBCB) – World Scientific
Publishers

Journal of Biomedical Informatics – Elsevier

Journal of Computational Biology - Mary Ann Liebert, Inc. publishers

Journal of Molecular Modelling – Springer

Nucleic Acids Research – Oxford Press

Protein Engineering, Design and Selection (*PEDS*) – Oxford Press

e-Resources

Bioinformatics.Org: The Open-Access Institute - <http://bioinformatics.org/>

European Molecular Biology Network - <http://www.embnet.org/>

European Bioinformatics Institute -<http://www.ebi.ac.uk/>

The European Molecular Biology Laboratory - <http://www.embl.org/>

International Society for Computational Biology - <http://www.iscb.org/>

National Center for Biotechnology Information - <http://www.ncbi.nlm.nih.gov/>

ExPASy Proteomics Server - <http://us.expasy.org/>

Mouse Genome Informatics - <http://www.informatics.jax.org/>

Center for Molecular Modeling - <http://cmm.info.nih.gov/modeling/>

RCSB PDB - <http://www.rcsb.org/pdb>

Bioinformatics resources -

http://www.biochem.ucl.ac.uk/bsm/BCSB/bioinfo_resources/bioinform_res.htm

South African National Bioinformatics Institute - <http://www.sanbi.ac.za/>

Swiss Institute of Bioinformatics - <http://www.isb-sib.ch/>

Protein Structure Prediction Center - <http://predictioncenter.llnl.gov/>

Programs for Genomic Applications -<http://www.nhlbi.nih.gov/resources/pga/>

Computational Molecular Biology At NIH - <http://molbio.info.nih.gov/molbio/>

Gene Ontology Home - <http://www.geneontology.org/>

All About The Human Genome Project (HGP) - <http://www.genome.gov/>

UCSC Genome Browser - <http://genome.ucsc.edu/>