

| <b>M.Sc PROGRAMME in «BIOINFORMATICS»</b>           |                                                                                                                                     |                               |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>MODULE PROGRAM SEMESTER A</b>                    |                                                                                                                                     |                               |
| <b>OCTOBER 2005 – FEBRUARY 2006</b>                 |                                                                                                                                     |                               |
| <b>MOLECULAR BIOLOGY AND GENOMICS (16:00-19:00)</b> |                                                                                                                                     |                               |
| <b>DATE</b>                                         | <b>LECTURE</b>                                                                                                                      | <b>LECTURERS</b>              |
| <b>Tuesday</b><br>18/10/2005                        | <i>Definitions-The “structure” of the prokaryotic-eukaryotic genome- DNA system levels-Genetic information transfer</i>             | Assoc. Prof. Georgios Rodakis |
| 25/10/2005                                          | <i>DNA transcription, DNA translation</i>                                                                                           | Assoc. Prof. Georgios Rodakis |
| 1/11/2005                                           | <i>Genetic code-Role and structure of tRNA and ribosomes in mRNA translation- Translation in prokaryotic and eukaryotic cells</i>   | Assoc. Prof. Georgios Rodakis |
| 8/11/2005                                           | <i>Geometry of the eukaryotic genome-</i>                                                                                           | Assoc. Prof. Georgios Rodakis |
| 15/11/2005                                          | <i>Databases and sequence formats-(Fasta, GenBank, EMBL) – annotation</i>                                                           | Assoc. Prof. Georgios Rodakis |
| 22/11/2005                                          | <i>DNA recombination technology</i>                                                                                                 | Assoc. Prof. Georgios Rodakis |
| 29/11/2005                                          | <i>Microbial Genomics</i>                                                                                                           | As. Prof. Georgios Diallinas  |
| 6/12/2005                                           | <i>Eukaryotic microorganisms as model systems for biological research- e.g. Saccharomyces cerevisiae &amp; Aspergillus nidulans</i> | As. Prof. Georgios Diallinas  |
| 13/12/2005                                          | <i>Structure-function relationships: The Molecular Genetics approach in model microbial systems</i>                                 | As. Prof. Georgios Diallinas  |
| 20/12/2005                                          | <i>Genetic Engineering Techniques-Genome analysis</i>                                                                               | As. Prof. Andreas Katsiotis   |
| 10/01/2006                                          | <i>Genetic Markers RFLP, RAPD, AFLP, SSR, MicroArrays</i>                                                                           | As. Prof. Andreas Katsiotis   |
| 16/1/2006<br>Monday<br>18:30-21:00                  | <i>Stem cells<br/>Biomedical models</i>                                                                                             | Lect. Georgios Goulielmos     |
| 17/1/2006                                           | <i>Gene therapy</i>                                                                                                                 | Lect. Georgios Goulielmos     |

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| <b>MODULE PROGRAM SEMESTER A</b>                         |
| <b>OCTOBER 2005 – FEBRUARY 2006</b>                      |
| <b>BIOMOLECULAR STRUCTURE AND FUNCTION (16:00-19:00)</b> |

| <b>DATE</b>                                                | <b>LECTURE</b>                                                    | <b>LECTURERS</b>               |
|------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------|
| <b>Friday</b><br><b>21/10/2005</b>                         | <i>Biomolecular Structure (I)</i>                                 | Prof. Stavros J. Hamodrakas    |
| <b>Monday</b><br><b>24/10/2005</b><br><b>(18:30-21:00)</b> | <i>Biomolecular Structure (II)</i>                                | Prof. Stavros J. Hamodrakas    |
| <b>Monday</b><br><b>31/10/2005</b><br><b>(18:30-21:00)</b> | <i>Protein Architecture (I)</i>                                   | Prof. Stavros J. Hamodrakas    |
| <b>4/11/2005</b>                                           | <i>Protein Architecture (II)</i>                                  | Prof. Stavros J. Hamodrakas    |
| <b>11/11/2005</b>                                          | <i>Protein Architecture (III)</i>                                 | Prof. Stavros J. Hamodrakas    |
| <b>18/11/2005</b>                                          | <i>Protein-Protein Interactions</i>                               | Dr. Metaxia Vlassi             |
| <b>Monday</b><br><b>21/11/2005</b><br><b>(19:00-21:00)</b> | <i>Secondary Structure Prediction-<br/>Molecular models</i>       | Dr. Vasiliki Iconomidou        |
| <b>25/11/2005</b>                                          | <i>Protein Folding-Translocation</i>                              | Prof. Elias Eliopoulos         |
| <b>2/12/2005</b>                                           | <i>Protein Structure Stability</i>                                | As. Prof. Constantinos Vorgias |
| <b>9/12/2005</b>                                           | <i>Protein-DNA Interactions</i>                                   | As. Prof. Constantinos Vorgias |
| <b>16/12/2005</b>                                          | <i>Protein-Carbohydrate Interactions</i>                          | As. Prof. Constantinos Vorgias |
| <b>23/12/2005</b>                                          | <i>Crystallization Basic Principles</i>                           | Dr. Metaxia Vlassi             |
| <b>13/01/2006</b>                                          | <i>Structural Motifs</i>                                          | Dr. Metaxia Vlassi             |
| <b>20/01/2006</b>                                          | <i>Amyloids-Biomaterials</i>                                      | Dr. Vasiliki Iconomidou        |
| <b>Monday</b><br><b>23/01/2006</b>                         | <i>DNA Structure - Supercoiled DNA –<br/>Nucleosome Structure</i> | Prof. Evangelos Moudrianakis   |



| M.Sc PROGRAMME in «BIOINFORMATICS»                                            |                                                                                                                                                                                                       |                                                   |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| MODULE PROGRAM SEMESTER A                                                     |                                                                                                                                                                                                       |                                                   |
| OCTOBER 2005 – FEBRUARY 2006                                                  |                                                                                                                                                                                                       |                                                   |
| Programming Languages and Software Tools in Bioinformatics I<br>(18:30-21:00) |                                                                                                                                                                                                       |                                                   |
| DATE                                                                          | LECTURE                                                                                                                                                                                               | LECTURERS                                         |
| Thursday<br>20/10/2005                                                        | <b>Introduction</b><br><b>Data Types:</b><br>Fundamental data types, definition of octal and hexadecimal constants, types of variables, arrays and strings, enumeration constants                     | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 27/10/2005                                                                    | <b>Operators I:</b><br>Substitution operator, numeric operators, increment and decrement operators, comparison operators, Boolean logical operators, digital logical operators, hypothetical operator | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 3/11/2005                                                                     | <b>Operators II:</b><br>explicit data type conversion– the <b>cast</b> operator, the <b>sizeof</b> operator, Priorities of operators, mixture of different data types in expressions.                 | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 10/11/2005                                                                    | <b>Control Structures:</b> <b>if</b> structure, <b>while</b> structure, <b>for</b> structure, <b>switch/case</b> structure, <b>continue</b> structure, <b>goto</b> structure, recursion               | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 24/11/2005                                                                    | <b>Pointers:</b><br>Definition, pointer variables, applications, Dynamic memory allocation functions.                                                                                                 | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 1/12/2005                                                                     | <b>Derived data types:</b><br>Data structures, Bit fields, Unions, Definition of new data type: typedef                                                                                               | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 8/12/2005                                                                     | <b>The C pre-processor:</b><br>Definition of constants: The <b>#define</b> directive, File inclusion: the <b>#include</b> directive, Conditional compilation                                          | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 15/12/2005                                                                    | <b>Input/Output and Library Functions:</b> Input/Output functions, other library functions                                                                                                            | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 22/12/2005                                                                    | <b>The structure of C programs:</b> Functions, Arguments of the main function.                                                                                                                        | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 12/01/2006                                                                    | <b>Applications I</b><br>(Simple Bioinformatics Programs)                                                                                                                                             | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 19/01/2006                                                                    | <b>Applications II</b><br>(Simple Bioinformatics Programs)                                                                                                                                            | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |
| 26/01/2006                                                                    | <b>Applications III</b><br>(Simple Bioinformatics Programs)                                                                                                                                           | Prof. Stavros J. Hamodrakas<br>Ioannis Hamodrakas |

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| <b>MODULE PROGRAM SEMESTER A</b>                              |                                                                          |                                                                   |
| <b>OCTOBER 2005 – FEBRUARY 2006</b>                           |                                                                          |                                                                   |
| <b>Principles and methods in bioinformatics (16:00-19:00)</b> |                                                                          |                                                                   |
| <b>DATE</b>                                                   | <b>LECTURE</b>                                                           | <b>LECTURERS</b>                                                  |
| <b>Monday<br/>17/10/2005</b>                                  | <i>Introduction (I)</i>                                                  | Prof. Stavros J. Hamodrakas                                       |
| <b>24/10/2005</b>                                             | <i>Introduction (II)</i>                                                 | Prof. Elias Eliopoulos                                            |
| <b>31/10/2005</b>                                             | <i>Databases (Protein and DNA)</i>                                       | Prof. Stavros J. Hamodrakas/<br>Nikolaos Papandreou/<br>Zoi Litou |
| <b>7/11/2005</b>                                              | <i>Sequence Similarity Searches<br/>-Sequence Multiple Alignment</i>     | Prof. Stavros J. Hamodrakas/<br>Nikolaos Papandreou/<br>Zoi Litou |
| <b>14/11/2005</b>                                             | <i>Molecular Graphics</i>                                                | Prof. Stavros J. Hamodrakas/<br>Nikolaos Papandreou               |
| <b>21/11/2005</b>                                             | <i>Docking</i>                                                           | Prof. Stavros J. Hamodrakas<br>Nikolaos Papandreou                |
| <b>28/11/2005</b>                                             | <i>Membrane Protein Structure and<br/>Function Prediction</i>            | Prof. Stavros J. Hamodrakas/ Dr.<br>Pandelis Bagos                |
| <b>5/12/2005</b>                                              | <i>Artificial Neural Networks<br/>-Applications in Bioinformatics</i>    | Prof. Stavros J. Hamodrakas/ Dr.<br>Pandelis Bagos                |
| <b>12/12/2005</b>                                             | <i>Hidden Markov Models (HMM' s)<br/>-Applications in Bioinformatics</i> | Prof. Stavros J. Hamodrakas/ Dr.<br>Pandelis Bagos                |
| <b>19/12/2005</b>                                             | <i>Protein folding</i>                                                   | Prof. Elias Eliopoulos/<br>Dr. Nikolaos<br>Papandreou             |
| <b>9/01/2006</b>                                              | <i>Homology Modelling</i>                                                | Prof. Elias Eliopoulos/<br>Dr. Nikolaos<br>Papandreou             |
| <b>16/01/2006</b>                                             | <i>Protein-DNA interactions</i>                                          | Prof. Elias Eliopoulos/<br>Dr. Nikolaos<br>Papandreou             |

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|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <b>Application of Informatics in the study and preservation of Biodiversity</b><br><b>(16:00-18:30)</b>              |                                                                                                                                                                            |                                                                 |
| <b>DATE</b>                                                                                                          | <b>LECTURE</b>                                                                                                                                                             | <b>LECTURERS</b>                                                |
| <b>Thursday</b><br><b>20/10/2005</b>                                                                                 | <i>Binomial species naming and classification, species description</i>                                                                                                     | As. Prof.Anastasios Legakis                                     |
| <b>27/10/2005</b>                                                                                                    | <i>Taxonomy keys</i>                                                                                                                                                       | Assoc. Prof. Artemis Nikolaidou                                 |
| <b>3/11/2005</b>                                                                                                     | <i>Sampling data, population</i>                                                                                                                                           | Lect. Persefoni Megalofonou                                     |
| <b>10/11/2005</b>                                                                                                    | <i>Phylogenetic Data</i>                                                                                                                                                   | As. Prof.Anastasios Legakis                                     |
| <b>24/11/2005</b>                                                                                                    | <i>Analysis of biocommunities</i>                                                                                                                                          | Assoc. Prof. Artemis Nikolaidou                                 |
| <b>1/12/2005</b>                                                                                                     | <i>Correlations of population and ecological factors n</i>                                                                                                                 | Lect. Persefoni Megalofonou/<br>Assoc. Prof. Artemis Nikolaidou |
| <b>8/12/2005</b>                                                                                                     | <i>Species distributio</i>                                                                                                                                                 | As. Prof.Anastasios Legakis                                     |
| <b>15/12/2005</b>                                                                                                    | <i>Territoriality analysis, Behavioural analysis</i>                                                                                                                       | As. Prof.Anastasios Legakis                                     |
| <b>22/12/2005</b>                                                                                                    | <i>Theoretical issues in Database management systems,statistical analyses, temporal analyses, spatial analyses, models, GIS</i>                                            | Lect. Persefoni Megalofonou/<br>As. Prof.Anastasios Legakis     |
| <b>12/01/2006</b>                                                                                                    | <i>Management of biological collections</i>                                                                                                                                | As. Prof.Anastasios Legakis                                     |
| <b>19/01/2006</b>                                                                                                    | <i>Visualization of data,metadata management , knowledge networking, data mining, uncertainty analysis, reasoning with incomplete information, automatic summarization</i> | As. Prof.Anastasios Legakis                                     |