Module Name **Computational Biology**

Type of Module Basic Module				**Module Code** BM-B-C 1		
Identification Number MN-B-C 1	**Workload** 180 Hours	**Credit Points** 6 CP	**Term** 1. – 3. Semester	**Offered Every** WiSe	**Start** Winter Term Only	**Duration** 1 Semester

1	**Course Types** a) Lecture	**Contact Time** 42 h	**Private Study** 138 h	**Planned Group Size** Approx. 50-70

2 Module Objectives and Skills to be Acquired

Students who successfully completed this module …

- have acquired detailed knowledge about the fundamentals of bioinformatics/computational biology (BICB).
- have acquired in-depth knowledge of important concepts and algorithms in BICB.
- know the kind of biological problems that can be solved with bioinformatic tools.
- • are able to contextualize quantitative approaches and methods with other fields of biology.

3 Contents of the Module

- Basic algorithms
- BICB algorithms
- DNA and RNA sequence analysis
- Genomes, transcriptomes, proteomes
- Gene expression analysis
- Prediction of protein architecture
- Databases of biological sequences
- Specialized biological databases
- Mathematical and statistical modelling

4 Teaching Methods

- Lectures

5 Prerequisites (for the Module)

Formally: none

Additional academic requirements:

Good quantitative/mathematical skills are required.

6 Type of Examination

Two hours written examination about topics of the lectures (100 % of the total module mark)

7 Credits Awarded

Written examination at least “sufficient”

8 Compatibility with other Curricula

None

9 Proportion of Final Grade

6/114

10	**Module Coordinator** Prof. Dr. Thomas Wiehe, phone 470 1588, e-mail: twiehe@uni-koeln.de
11	**Further Information** **Participating faculty**: Prof. Dr. A. Beyer, Prof. Dr. K. Hofmann, Prof. Dr. T. Wiehe **Literature:** • Information about textbooks and other reading material will be given on the ILIAS representation of the course