

Bioinformatics 2 (C000500)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

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|--------------------|--|--------------------|--------|
| Course size | <i>(nominal values; actual values may depend on programme)</i> | | |
| Credits 3.0 | Study time 80 h | Contact hrs | 25.0 h |

Course offerings and teaching methods in academic year 2020-2021

| | | | | |
|----------------|---------|------|---|--------|
| A (semester 2) | English | Gent | seminar: practical PC room classes | 10.0 h |
| | | | lecture | 15.0 h |
| | | | online seminar: practical PC room classes | 0.0 h |
| | | | online lecture | 0.0 h |

Lecturers in academic year 2020-2021

| | | |
|-------------------|------|--------------------|
| Van de Peer, Yves | WE09 | lecturer-in-charge |
|-------------------|------|--------------------|

Offered in the following programmes in 2020-2021

| | crdts | offering |
|---|-------|----------|
| Master of Science in Teaching in Science and Technology (main subject Biochemistry and Biotechnology) | 3 | A |
| Master of Science in Biochemistry and Biotechnology | 3 | A |
| Exchange programme in Biochemistry and Biotechnology (master's level) | 3 | A |

Teaching languages

English

Keywords

motif detection, molecular phylogeny, tree construction, phylogenomics, gene duplication, genome duplication

Position of the course

Bioinformatics II is a follow up of the course Bioinformatics, given in the 3rd year Bachelor Biochemistry and Biotechnology.

This course contributes to the following program competences: M.WE.BB.1.1, M.WE.BB.1.2, M.WE.BB.1.5, M.WE.BB.2.1, M.WE.BB.2.2, M.WE.BB.2.5, M.WE.BB.2.6

Contents

The content of the course is example based and coevolves with the domain. Case studies will be situated in the following domains:

Molecular phylogenetics

- Maximum parsimony
- Pairwise distance methods
- Likelihood methods and Bayesian inference
- phylogenomics
- tree reconciliation
- Bootstrap analysis

Gene and genome duplications

- Identification and implications

Initial competences

To have a general knowledge of bioinformatics and to have taken the course in Bioinformatics I.

Final competences

- 1 Insight in the possibilities and limitation of the bioinformatics research.
- 2 Development of a critical attitude towards research results.
- 3 Being aware that successful bioinformatics research requires not only biological insight but also a clear understanding of the theory behind the used tools.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Guided self-study, lecture, seminar: practical PC room classes, online lecture, online seminar: practical PC room classes

Extra information on the teaching methods

Lecture, seminar: practical PC room classes, self study The emphasis is on the interpretation of the results rather than on tool usage. This implies critical thinking and having a thorough understanding of the theory. Practical courses will therefore be intertwined with the theory (the distinction between A and B hours will be maintained but in reality there is no difference between theory and practice).

Learning materials and price

Course material used during the lectures will be available in electronic form for the students. In addition, URLs together with relevant scientific publications (review papers) will be provided. Cost: 0 EUR

References

Own lecture notes

Course content-related study coaching

On appointment (by email)

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination

Examination methods in case of periodic evaluation during the second examination period

Written examination

Examination methods in case of permanent evaluation**Possibilities of retake in case of permanent evaluation**

not applicable

Calculation of the examination mark

100 % written exam