

Evolutionary Biology (C003709)

Course size *(nominal values; actual values may depend on programme)*

Credits 3.0 **Study time 80 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 2)	English	Gent	lecture seminar
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Lecturers in academic year 2024-2025

Marchal, Kathleen	WE09	lecturer-in-charge
Van de Peer, Yves	WE09	co-lecturer

Offered in the following programmes in 2024-2025

	crdts	offering
Master of Science in Bioinformatics(main subject Systems Biology)	3	A
Exchange Programme in Bioinformatics (master's level)	3	A

Teaching languages

English

Keywords

Molecular evolution, tree construction, phylogenomics, gene and genome duplication

Position of the course

Contents

- Homology and common descent
- Tree construction methods
 - Parsimony
 - Evolutionary distance
 - Maximum likelihood and Bayesian inference
- Evolutionary models
- Gene and genome duplication
- Tree reconciliation
- Phylogenomics
- Case studies in evolutionary analysis
- Impact of evolutionary thinking on society

Initial competences

Basic knowledge of molecular biology and evolution

Final competences

- 1 Knowledge of genetics and evolutionary concepts.
- 2 Knowledge of the application domains of molecular evolution and phylogenetics.
- 3 Be able to use and apply state-of-the-art tree construction methods.
- 4 Be able to interpret the outcome of phylogenetic analyses.
- 5 Be able to understand and interpret specialized literature on phylogenetics and molecular evolution.
- 6 Communicate and report in English.
- 7 Understand important controversies regarding evolution and their possible implications for society.

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

Seminar, Lecture, Independent work

Study material

Type: Handouts

Name: MS Word file and pdf

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

Online Available : No

Available in the Library : No

Available through Student Association : No

Usability and Lifetime within the Course Unit : one-time

Usability and Lifetime within the Study Programme : regularly

Usability and Lifetime after the Study Programme : occasionally

References

state of the art research articles

Course content-related study coaching

Contact hours with lecturer

Assessment moments

end-of-term and continuous assessment

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

Written assessment

Examination methods in case of periodic assessment during the second examination period**Examination methods in case of permanent assessment**

Peer and/or self assessment, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Permanent evaluation (if time permits): Students present summary of research articles related to the topic of interest (microteaching). Students evaluate each others skills (peer evaluation)

Calculation of the examination mark

- 80 % periodic evaluation
- 20 % non periodic evaluation (30% presentation, 10% peer evaluation)