GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Biology of Ageing (C003347)

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

Credits 4.0 **Study time 120 h**

Course offerings and teaching methods in academic year 2025-2026

B (semester 2) English Gent

Lecturers in academic year 2025-2026

Braeckman, Bart WE11 lecturer-in-charge

Offered in the following programmes in 2025-2026	crdts	offering
Master of Science in Teaching in Science and Technology(main subject Biology)	4	A, B
International Master of Science in Agro- and Environmental Nematology	4	A
Master of Science in Biology	4	A, B
Exchange Programme in Biology (master's level)	4	A

Teaching languages

English

Keywords

Ageing, model systems, signaling, caloric restriction, reactive oxygen species, demography, evolution

Position of the course

The student will use his/her knowledge of different aspects of biology (genetics, molecular biology, biochemistry, evolution) to understand factors that cause organismal ageing and mechanisms underlying increased life span.

Contents

This course addresses the genetic basis of life span in several established model organisms including the budding yeast *Saccharomyces cerevisiae*, the fungus *Podospora anserina*, the round worm *Caenorhabditis elegans*, the fruit fly *Drosophila melanogaster*, and mammalian (mouse, rat man) models. An introductory section deals with general demographic physiological, metabolic and evolutionary aspects of ageing. The core section deals with interactions involving oxidative damage inflicted by reactive oxygen species and cellular defense and repair systems, signal transduction and neuro-endocrine control, and the effect of caloric restriction in the various models. Throughout this course we attempt to highlight interactions involving genetic and extrinsic factors and to distinguish evolutionary conserved (public) versus species-specific (private) ways of ageing. Based on the knwledge, obtained in this course, the students are asked to critically evaluate a recent publication in the field of gerontology.

Initial competences

Having basic knowledge of biochemistry, genetics, molecular biology and widely used biotechnological tools.

Final competences

1 Be able to evaluate scientific research.
2 Understanding mechanisms underlying ageing.
3 Understanding mechanisms causing life extension.

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

Lecture, Independent work, Peer teaching

Study material

Type: Syllabus

Name: Biology of Aging: text
Indicative price: € 5
Optional: no
Available on Ufora : No
Online Available : No
Available in the Library : No
Available through Student Association : Yes

Type: Syllabus

Name: Biology of Aging: slides
Indicative price: € 17
Optional: no
Available on Ufora : No
Online Available : No
Available in the Library : No
Available through Student Association : Yes

References

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Course content-related study coaching

Questions will be answered during classes or on Ufora

Assessment moments

end-of-term and continuous assessment

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

Oral assessment, Written assessment

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

Oral assessment, Written assessment

Examination methods in case of permanent assessment

Presentation

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Theory: oral and written (periodical)
Presentation (non-periodical)

Calculation of the examination mark

Theory (80%) + presentation (20%)