GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2024-2025

Sustainable Landscape of Pharmaceutical Discovery (J000528)

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

Credits 6.0 **Study time 150 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)	English	Gent	independent work
			seminar
			excursion
			lecture
			group work

Lecturers in academic year 2024-2025

Hertleer, Carla	FWO2	staff member
Wynendaele, Evelien	FWO2	lecturer-in-charge
De Spiegeleer, Bart	FWO2	co-lecturer

Offered in the following programmes in 2024-2025	**crdts**	**offering**
International Master of Science in Sustainable Drug Discovery	6	A

Teaching languages

English

Keywords

Sustainability; pharmaceuticals; climate change; socio-economic equality

Position of the course

Students are introduced to the term 'sustainability' and to the different perspectives on sustainability. Next, this course takes a closer look at the climate change aspects as well as the socio-economic equality issues related to 'sustainability'. We present the physical science basis of climate change and discuss different impacts, mitigation and adaptation strategies over different sectors and systems, with a special focus on the healthcare and pharmaceutical industry. Attention is also given to the various methods of climate-change research and the associated uncertainties in climate-change modelling and projections for the future. The socio-economic equality issues of healthcare and availability of quality medicines is further explored. The different actors and forces driving the worldwide pharmaceutical challenges are discussed.

Contents

Sustainability and medicines:
1) definitions
2) viewpoints & organisations
Climate change and role of medicines:
1) the Earth's energy balance: units & data, greenhouse effect
2) measures, modeling & projections for the future
3) impacts and adaptations & mitigations
4) presentation + discussion (mid-term evaluation)
5) study visit
Socio-economic equality of medicines:
1) pharmaceutical industry versus other health "silo's" and non-health industries
2) cost structure within pharmaceutical industry
3) pharma within social security system(s)
4) global challenges: worldwide accessibility & availability, stock ruptures, IP,

essential medicines & vaccins
5) paper + discussion (mid-term evaluation)

Initial competences

Basic knowledge of fundamental physical, chemical and biological principles and processes

Final competences

1 Understand the different aspects of sustainability
2 Appoint & position organisations and their (sustainability) viewpoints
3 Define risks & impacts (overall and health) of climate change
4 Discuss climate change mitigations (general and pharma-related)
5 Interpret and compare global business data of the pharmaceutical sector
6 Comparatively quantify cost drivers in pharma
7 Understand the importance of intellectual property (IP) and regulatory systems
8 Compare different price and reimbursement systems world-wide, with equality considerations
9 Propose, rationalise and discuss your own position, orally and in writing

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

Group work, Seminar, Excursion, Lecture, Independent work

Extra information on the teaching methods

1 study visit (half-day) to an experimental climate change unit.

Study material

Type: Slides

Name: Slides
Indicative price: Free or paid by faculty
Optional: no
Available on Ufora : Yes

References

Is available in course material.

Course content-related study coaching

Guidance of students in developing a presentation and a paper on a relevant and actual topic

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

Participation, 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

Periodic evaluation: oral exam starts after a written preparation.

Calculation of the examination mark

The seminar activities, leading to an oral presentation (mid-semester, in last coached seminar for oral presentation) and to a paper presentation, are responsible for 50% of the course score. The examination at the end of the semester is responsible for the other 50% of the points. If the student obtains a score below 9/20 for one of the separate parts of the evaluation (seminar activities

or examination), then the final mark is automatically reduced to the lowest score obtained for one of the separate parts.
Students who eschew period aligned and/or non-period aligned activities or evaluations in this course may be failed by the examiner.