GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Research Skills (C004227)

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

Credits 3.0 **Study time 90 h**

Course offerings and teaching methods in academic year 2025-2026

A (Year)	Dutch, English	Gent	independent work	
			lecture	15.0h
			group work	

Lecturers in academic year 2025-2026

Detavernier, Christophe	WE04	lecturer-in-charge
Boone, Matthieu	WE05	co-lecturer
De Rijcke, Sven	WE05	co-lecturer

Offered in the following programmes in 2025-2026	**crdts**	**offering**
Bachelor of Science in Physics and Astronomy	3	A

Teaching languages

English, Dutch

Keywords

literature research; scientific writing; research skills.

Position of the course

This course unit belongs to the learning pathway "Experimental physics and astronomy; data processing" in the Bachelor program Physics and Astronomy
In this course the student will be obtain different research skills, which will also be needed during the bachelorproject and the master thesis, and later in any research environment (not limited to academic research).
The student will learn how they can search in an efficient way scientific and technical information, how to process and report the information. Furthermore, the student will learn to reflect critically on both the technical-scientific aspects as well as social (notably ethical) aspects of scientific research.
The course will allow the students to apply their acquired multidisciplinary knowlegde on a given research topic. The students will obtain insight in the organisation and how to perform a research question or project, will learn how they can work independently or in group to solve problems, to ask specific questions and to communicate in a clear way with the promotor and with their peers.

Contents

1 Scientific literature: basic aspects of peer review, types of scientific publications, sources of literature, databases, libraries. Literature studies.
2 Ethical aspects of scientific research. Research integrity. Principles of FAIR
3 Communication of scientific work and results. Structure of scientific papers. Data visualization and graphical abstracts
4 Valorization and IP
5 Perform a literature study on one of the selected topics
6 Conception of a research plan

Initial competences

Having successfully completed the courses “Experimenteren in de fysica en de sterrenkunde 1” and “Experimenteren in de fysica en de sterrenkunde 2”. Good English proficiency

Final competences

1 The student is able to translate a research question into a relevant literature study.
2 Based on a literature study, the student is able to summarize the described knowledge and show a critical attidtude towards the described results
3 De student is able to reference in a scientific way, and write in English using the appropriate jargon
4 The student is able to work and communicate as a team.
5 The student has basic knowledge of the ethical aspects of research as well as of valorization and IP

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, Lecture, Independent work

Extra information on the teaching methods

During lectures by the lecturers and guest lecturers, general research skills will be taught, notably on the topics of scientific literature, research integrity, scientific writing and presentation skills.
In the section on scientific literature, peer review, available databases, search strategies, citing, referencing and reference software are discussed. Subsequently, the students individually or in small groups work out a literature study. Students should independently complete the Ufora learning path “Generative AI - from learning to creating".

Study material

Type: Slides

Name: Slides
Indicative price: Free or paid by faculty
Optional: no
Language : Dutch
Number of Slides : 1
Oldest Usable Edition : 2023
Available on Ufora : Yes
Online Available : No
Available in the Library : No
Available through Student Association : No

References

Writing for Science Students, Jennifer Boyle, Scott Ramsay, Publisher: Red Globe Press, Pages: 224, Series: Macmillan Study Skills https://www.macmillanihe.com/page/detail/Writing-for-Science-Students/?K=9781137571519

Course content-related study coaching

Assessment moments

continuous assessment

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

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

Examination methods in case of permanent assessment

Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Calculation of the examination mark