

Quantitative Methodology in Scientific Research (D012138)

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.

Course size (nominal values; actual values may depend on programme)
Credits 5.0 Study time 150 h Contact hrs 30.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 1)	Dutch	Gent	teaching method	hours
			online lecture	11.25 h
			seminar	3.75 h
			lecture	22.5 h
			online lecture: plenary exercises	3.75 h

Lecturers in academic year 2020-2021

Beeckman, Dimitri	GE39	lecturer-in-charge
Clays, Els	GE39	co-lecturer
Van Hecke, Ann	GE39	co-lecturer

Offered in the following programmes in 2020-2021

programme	crdts	offering
Linking Course Master of Science in Health Promotion	5	A
Linking Course Master of Science in Health Care Management and Policy	5	A
Linking Course Master of Science in Nursing and Midwifery	5	A
Preparatory Programme Master of Science in Health Promotion	5	A
Preparatory Course Master of Science in Health Care Management and Policy	5	A

Teaching languages

Dutch

Keywords

Quantitative research, methodology, epidemiology

Position of the course

The aim of this course is to familiarize students with the basic concepts of quantitative research. The course consists of a combination of on- campus and online lectures and seminars. During the lectures theoretical concepts and basic methodological principles of quantitative research are being taught. Attention is given to the essence of scientific research, systematic literature research, preparatory steps in a research process, ethical aspects and scientific integrity in research, research designs (including mixed methods research), samples, instrument development, data collection, evaluation of measurements, epidemiological concepts and measurements (frequency measures, measures of association, diagnostic value of a test). During on- campus and online seminars, theoretical insights will be processed and practiced by using scientific international literature. At the end of this course the student will be able to systematically evaluate and appreciate scientific literature that used quantitative research. This course is situated in the 'role of scientist'. As a **scientist**, the Master of Science in Nursing and Midwifery takes an active role in collecting, critically evaluating, synthesizing and presenting scientific knowledge. In this course internationalization is formalized through the frequent use and integration of English learning materials and international scientific publications.

Contents

This course includes the following learning contents:

- Use of databases
- Strategies for detecting research literature
- Preparatory steps in a research process
- Ethical considerations in research and scientific integrity
- Research designs
- Bias and rival hypotheses
- Sampling methods
- Data collection methods
- Questionnaires
- Quality of data
- Psychometric validation of measurement scales
- Epidemiological concepts and measurements (frequency measures, measures of association, diagnostic value of a test).
- Mixed methods research

Initial competences

You can download the list of prerequisites on <https://oasis.ugent.be/oasis-web/curriculum/voorkennisvancursus?cursuscode=D012138&taal=en>.

This course builds on the attainment targets of the professional bachelor programme. The student is required to have a good knowledge of the English language.

Final competences

- 1 The student can evaluate the scientific value and quality of quantitative research in international scientific publications.
- 2 The student knows how quantitative research is designed and reported.
- 3 The student understands study designs, bias and rival hypotheses, sampling methods, data collection methods, psychometric validation of scales and epidemiological concepts and measurements.
- 4 The student regularly consults scientific literature.
- 5 The student shows a critical attitude towards reading and interpreting scientific research.

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, seminar, online lecture, online lecture: plenary exercises

Learning materials and price

- Presentations and documents via Minerva.
- Notes made by the students during lectures.
- Hanboek: Polit, D.F. & Beck, C.T. (2017). Nursing research: Generating and assessing evidence for nursing practice (10th edition), Philadelphia: Wolters Kluwer
- Reader of relevant publications.
 - Beeckman, D., Defloor, T., Demarré, L., Van Hecke, A. & Vanderwee, K. (2010). Pressure ulcers: development and psychometric evaluation of the Attitude towards Pressure ulcer Prevention instrument (APuP). *International Journal of Nursing Studies*, 47(11), 1432-1441.
 - Demarré, L., Beeckman, D., Vanderwee, K., Defloor, T., Grypdonck, M. & Verhaeghe, S. (2012). Multi-stage versus single-stage inflation and deflation cycle for alternating low pressure air mattresses to prevent pressure ulcers in hospitalised patients: A randomised-controlled clinical trial. *International Journal of Nursing Studies*, 49(4), 416-426.
 - Haerens, L., De Bourdeaudhuij, I., Maes, L., Vereecken, C., Brug, J. & Deforche, B. (2007). The effects of a middle-school healthy eating intervention on adolescents' fat and fruit intake and soft drinks consumption. *Public Health Nutrition*, 10(5), 443-449.
 - Polit, D.F. & Beck, C.T. (2017). Nursing research. Generating and assessing evidence for nursing practice (10th edition). Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.
 - Van Hecke, A., Goeman, C., Beeckman, D., Heinen, M. & Defloor, T. (2011). Development and psychometric evaluation of an instrument to assess venous leg ulcer lifestyle knowledge among nurses. *Journal of Advanced Nursing*, 67(12), 2574-2585.
 - Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten, & Koninklijke Academie voor Geneeskunde van België. Ethische code van het wetenschappelijk onderzoek in België.

- European Science Foundation, & ALLEA. The European Code of Conduct for Research Integrity. Strasbourg: Ireg-Strasbourg; 2011. Available from: http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf.
- Verleye K, Gemmel, P., & Rangarajan, D. Managing Engagement Behaviors in a Network of Customers and Stakeholders: Evidence From the Nursing Home Sector. *Journal of Service Reserach*. 2013:1-17.
- Smedley J, Inskip, H., Trevelyan, F., Buckle, P., Cooper, C., & Coggon, D. Risk factors for incident neck and shoulder pain in hospital nurses. *Journal of Occupational and Environmental Medicine*. 2003;60:864-9.

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Estimated cost: 85 euros

References

- Bouter, L.M., & van Dongen, M.C.J.M. (2005) *Epidemiologisch onderzoek Opzet en interpretatie*. Houten: Bohn Stafleu Van Loghum.

Course content-related study coaching

Interactive teaching with room for interaction.
Personally: by appointment

Evaluation methods

end-of-term evaluation

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

Written examination with open questions, written examination with multiple choice questions

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

Written examination with open questions, written examination with multiple choice questions

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Written exam with open and multiple choice questions.
Multiple choice questions: higher cutting score, standard setting is applied

Calculation of the examination mark

The final score is entirely defined by the written examination.