This course provides an introduction to the core principles of statistics for criminologists. Quantitative research is one important tool that social scientists in general and criminologists in particular use to observe society. Official data from public administrations at different levels of the criminal justice system tell their own story of problems of insecurity based on the statistics these services gather. Descriptive statistics provide the tools to systematically synthesise large amounts of complex data into a limited number of interpretable coefficients. Inferential statistics provides the means to infer conclusions for the full population based on sample data. The main objective of this course is to train students in becoming conscious and critical users of statistics. Finally, multivariate statistics are introduced. The here obtained knowledge, insights and skills can be further elaborated in later years where more advanced statistical techniques are taught.

Introduction
- Statistics in social science research with specific emphasis on criminology
- Measuring, units, variables, levels of measurement, data matrix
- The use of statistical software: an introduction to the use of SPSS/PASW

Descriptive statistics
- univariate statistics: frequency distribution, graphics, measures for centrality, dispersion and shape
- theoretical distributions, normal distribution
- bivariate statistics: cross tabulation, scatterplots, measures of association, correlation and regression analysis
- statistical control: relationships between more than two variables
- issues of non-response, spurious correlation
- introduction to multiple regression and path-analysis

Inferential statistics
- theoretical distributions
- Sample variability, sampling distribution
- Confidence intervals and significance tests for counts, proportions, means and the
association between two variables.

**Multivariate statistics**
- Partial correlations
- Multiple regression analysis
- Introduction into the philosophy of path analysis

**Initial competences**
Final objectives of secondary education. Three hours of maths in the final years of secondary education provides a proper starting level.

**Final competences**
1. Have insight into the opportunities and limitations of quantitative techniques for criminological research.
2. Understand statistical analyses in the literature, be able to interpret and critically evaluate the results.
3. Make an informed decision of a proper statistical technique to answer a specific research question.
4. Be able to correctly calculate and interpret statistical coefficients.
5. Have insight into the opportunities and limitations of statistical coefficients.
6. Become a critical and informed user of univariate, bivariate, inferential and multivariate statistics.

**Conditions for credit contract**
Access to this course unit via a credit contract is unrestricted: the student takes into consideration the conditions mentioned in 'Starting Competences'.

**Conditions for exam contract**
This course unit cannot be taken via an exam contract.

**Teaching methods**
Guided self-study, lecture, lecture: plenary exercises, seminar: coached exercises

**Extra information on the teaching methods**

**LECTURE (HOORCOLLEGE):** Collective learning situation in which the lecturer transfers knowledge to a group of students. The students' activity is mostly limited to listening and taking notes, although lecturers may ask students questions or give them minor assignments. Interactions are mainly initiated by the lecturer, and are intended to support the transfer of knowledge. The lecturer can only check to a small extent whether all students have acquired the new knowledge, and follow-up and coaching towards individual students is limited. Lectures (i.e. “ex-cathedra” classes) may set out from concrete situations or refer to material that was read by the students beforehand. Plenary exercises as a teaching method are collective learning situations in which exercises are solved by the lecturer. The intended purpose is largely to demonstrate solution methods, with only limited interaction with and input from the students.

**GUIDED SELF-STUDY (BEGELEIDE ZELFSTUDIE):** A set of guided sessions and independent learning situations in which students acquire and/or process knowledge for (a part of) a course on an individual basis. This teaching method is used in preparation of lectures and seminars. In the case of self-study, adapted learning materials are provided with built-in coaching components (i.e. embedded support). Examples of these components include overviews, tables of contents, questions for self-tests (in an electronic learning environment with feedback), diagrams, key concepts, summaries, explicit learning objectives per unit, processing assignments, examples, suggestions for revising, audiovisual material, knowledge clips etc. Guided self-study is different from distance learning in that it involves personal contact (whether collective or individual, online or in person) with the lecturer, who steers and/or coaches.

**SEMINAR (WERKCOLLEGE):** A collective interactive learning situation in which students learn and practise competencies or techniques, apply knowledge or discuss and work out a problem or a case, under the supervision of academic staff (academic assistant). In these types of sessions, the lecturer makes use of exercises, short assignments, etc. Only a limited number of students are allowed to sit in on these seminars (30-60 students), so that the staff can monitor the learning progress of all the students, provide the necessary guidance (individually or in groups) and intervene in the learning process if required. Unlike lectures, where interactions are chiefly lecturer to students, seminars more often also include forms of interaction in which students communicate with each other or in which they are required to interact with the lecturer. Unlike plenary exercises, coached exercises require a greater level of activity from students. Students are expected to thoroughly prepare the exercises and to interact actively during these seminars. In preparation to the exam a self test will be organised after Easter holidays. Feedback will be given afterwards during one of the seminars.

**Learning materials and price**

- Pauwels, L. (2017). *Basiscursus Statistiek in de Criminologie Deel I: Theoretische*
achtergrond van de beschrijvende en Inferentiële statistiek. Gent: Onuitgegeven syllabus Ugent. (richtprijs 20 euro)


References


Course content-related study coaching

- e-learning via Minerva: course slides, exercises, forum
- individual help during an office hour for student consultations of the assisent, and before, during and after the exercises
- self-test
- additional consultations through the “Monitoraat”

Evaluation methods

- end-of-term evaluation

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

- Written examination with multiple choice questions

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

- 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 using multiple choice answers. Emphasis lies on insight and application rather than knowledge as such.

Calculation of the examination mark

- 100% periodic evaluation.
- Written exam using multiple choice answers. Emphasis lies on insight and application rather than knowledge as such.

Format cutting score according to standard setting (based on the number of questions and response categories).