



Vesalius College

Brussels

STA-101P

Quantitative Methods

Contact Details for Professor

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Course Prerequisites (if any): None.

Course Materials

Lecture notes will be available for download on [PointCarré](#).

The Texas Instruments TI-83 or TI-84 calculator is required for this course. Make sure that you know how to use the calculator ([manual PDF](#)) and that it has full batteries: a calculator has to make you gain time, not lose time.

Course Assessment

The students will be evaluated on the basis of their performance as follows:

➤ Attendance & in-class participation	10%
➤ Homework	20%
➤ Class tests	20%
➤ Midterm Exam	25%
➤ Final Exam	<u>25%</u>
TOTAL	100%

Learning Objectives

This course aims at providing students with a basic understanding of descriptive statistics (summarizing data) and inferential statistics (making valid generalizations from sample data). The material is broad enough to provide a basic statistics background for students for whom this course is their only exposure to the material, while building the foundation for students enrolling in subsequent intermediate and more advanced statistics courses.

At the end of the course, students should be able to:

- critically analyze data sets and apply the tools of statistics to data in order to improve decision making;
- use statistical software and a scientific calculator to do statistical computations (enter data, generate descriptive statistics and graphs, estimate population parameters, perform hypothesis tests)
- communicate the results of statistical work, and more specifically write up the results of statistical analysis in a report consisting of a non-technical abstract aimed at decision makers, so that they can improve their decisions, and a main section aimed at peers explaining the technical details and exact interpretation of the results.

Learning Outcomes:

- Quantitative and qualitative research
- General education
- Identify, analyze and solve a problem
- Input data, generate and interpret results, and identify additional need for research
- Apply the knowledge on the job
- Being able to critically evaluate existing research, question the status quo, and provide alternative solution possibilities
- Process and analyze data, using the appropriate tools
- Work independently
- Work with others, take on responsibility and show leadership
- Be curious, inquisitive
- Develop an attitude of life-long learning
- Be ethical, professional and self-critical
- Develop to become a well-rounded, critical citizen

Course Description

Statistics is the art of using data to make numerical conjectures about problems.

Descriptive statistics is the art of summarizing data.

Topics include: histograms, the average, the standard deviation, the normal curve, correlation.

Much statistical reasoning depends on the theory of probability.

Topics include: chance models, expected value, standard error, probability histograms, convergence to the normal curve.

Statistical inference is the art of making valid generalizations from samples.

Topics include: estimation, measurement error, tests of statistical significance.

Course Schedule:

Week 1	Repetition of basic algebra: order of operations, fractions, linear equations
Week 2	Repetition of basic algebra: parabolic equations, systems of equations
Week 3	Repetition of basic algebra: exponents and logarithms, percentages, compound interest, arithmetic & geometric series
Week 4	Descriptive statistics: Frequencies, histograms, measures of center (mode, average, median), percentiles
Week 5	Descriptive statistics: measures of spread (inter-quartile range, standard deviation)
Week 6	Normal curves and Standard units
Week 7	Repetition & Midterm Exam
Week 8	Correlation and regression method
Week 9	Probability: combinatorics, chances
Week 10	Probability: box models, expected value, standard error
Week 11	Sampling
Week 12	Confidence intervals
Week 13	Tests of significance
Week 14	Repetition
Week 15	Final exam

Grading Scale of Vesalius College

Vesalius College grading policy, in line with the Flemish Educational norms:

A	85%
A-	81%
B+	77%
B	73%
B-	69%
C+	66%
C	62%
C-	58%
D+	54%
D	50%
F	Below 50%

Grading Criteria

The following criteria will be applied in assessing your written work:

- Evidence of understanding of the concepts, theories and ideas developed in the course.
- Correct calculations

Additional Course Policies

There will be a class test every week.

Contact me if you miss a test or homework assignment.

Academic Honesty Statement

Academic dishonesty is not tolerated in this course. Academic honesty is not only an ethical issue but also the foundation of scholarship. Cheating and plagiarism are therefore serious breaches of academic integrity. Following the College policy, cheating and plagiarism cases will be communicated in writing to the Associate Dean for Students and submitted to the Student Conduct Committee for disciplinary action. If you refer to someone else's work, appropriate references and citations must be provided. Grammar, spelling and punctuation count, so use the tools necessary to correct before handing in assignments.

Protocol for Conducting Exams at Vesalius College

1. Students must store their cell phones and any other electronic devices (iPods, MP3 Players, tablets etc.) in their bags or coat pockets, outside of their reach. Possession of any such item on the student's person or place will be considered as evidence of cheating.
2. Students must leave their coats, hat, and bags in front or around the periphery of the classroom.
3. The exam is *open book*. You can use your notes, books & calculator. Students may have only the material designated by the instructor on their desk. The instructor has the right to inspect this material. You are not allowed to pass material (such as calculators) to other students during the exam. You cannot use your GSM or tablet as a calculator.
4. Students are not allowed to leave the classroom during the exam. (If an emergency occurs, another faculty or administration member must escort the student out of the classroom.)
5. Students must remain seated during the last 15 minutes of the exam and wait until the completion of the exam session. If students finish the exam before the final 15 minutes, they will be permitted to leave.
6. If a student is found cheating, the result is an immediate F, and the instructor is required to report the student to the Student Conduct Committee.