STOCKHOLM UNIVERSITY
Department of Statistics
Spring 2024, period C-D

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Basic Statistics for Economists, 15 credit points (ECTS), STE101 Course Description

LEARNING GOALS

I. identify, solve and interpret elementary statistical problems with economic applications,

II. locate and utilize suitable data sources to use as a basis for statistical decision making,

III. plan a market research survey as well as carrying out and comparing different sampling methods,

IV. apply and interpret simple models for regression and time series analysis.

CONTENTS OF THE COURSE

The course provides an introduction to basic knowledge regarding descriptive statistics, different data sources as official statistics, probability theory, random variables and their distributions, statistical inferences such as point and interval estimation, hypothesis testing, different survey types, sampling methods, data collection methods and the construction of questionnaires, different types of errors and quality reports, correlation measures, simple and multiple regression analysis, and time series and forecasts. The course emphasizes a critical approach to the concepts, definitions and methods that are explored.

The course consists of one unit that is examined in four *parts*:

Home assignment 1: Data for Decisions, written report; 1.5 ECTS

Home assignment 2: Market Survey, written report and oral presentation; 3 ECTS

Home assignment 3: Econometrics, written report; 3 ECTS

Exam: Statistics for Economists, written test; 7.5 ECTS

Note that each part is graded separately and independently. This means that you if you pass on a part, you are not required to re-take that part should you fail to pass any of the others. E.g. if you have passed the three home assignments but fail to pass the final exam, you will retain the corresponding credit points and will not be required to do them again; you are only required to do the parts you have not yet passed.

EXAMINATION AND GRADING

Students will be assessed based on the course's learning goals. Knowledge control on the learning goals will be examined through an individual exam, as well as on written and oral group assignments. The home assignments are hand-in group assignments that are graded on a two-point scale where G is a passing grade and U is a failing grade. The final exam is a written test with the following seven-point scale:

A = Excellent,
B = Very Good,
C = Good,
D = Satisfactory,
E = Adequate,
Fx = Fail, inadequate
F = Fail, totally inadequate

Final grading on the course

- To pass the course, students must get at least an E on the written examination and pass all three hand-in assignments. The final grade for the course will equal the grade of the final written exam.
- Students who have not earned a passing grade on all four exams will not receive a final grade.

Additional information

- Students who have received a passing grade on the written exam (at least an E) cannot take the exam again for a higher grade.
- Both Fx and F are failing grades and require re-examination on the written exam in order to pass the course. Supplementary assignments in order to raise an Fx to a passing grade is not permissible for this course.
- Students who receive an Fx or F on one exam are entitled to re-examinations as long as the course is still given without restrictions on the grading scale, the full A-F scale is applied.
- Students who have received an Fx or F on the examination twice by the same examiner are entitled to request that a different examiner assess their examination. Such a request must be made to the head of the department in written form.
- If the course is cancelled, students are entitled to be examined once per semester in accordance with the course syllabus for the following three semesters.

DEADLINES AND EXAMINATION SCHEDULE

For each of the course's examination parts, there will be two examination opportunities.

Assignment 1: - Data for Decisions	Deadline: Sunday April 07, 23.59 Feedback given: Sunday April 14 Second deadline: Sunday April, 21.59
Assignment 2: - Market survey	Deadline: Sunday April 21, 23.59 Oral presentation: Wednesday April 24 or Thursday April 25 Feedback given: Sunday April 28 Second deadline: Sunday May 05, 23.59
Assignment 3: - Econometrics	Deadline: Sunday May 19, 23.59 Feedback given: Sunday May 26 Second deadline: Sunday June 02, 23.59

- If an assignment handed in by the first submission date fails, students have the opportunity to correct mistakes and hand in a revised assignment by the second deadline.
- If you do not submit your assignment before the first deadline, and submit your report for the first time by the second deadline, you will not have the opportunity to revise and correct your report.
- The second deadline constitutes the second examination opportunity.
- Feedback for assignments submitted at the second deadline should be available around 5-7 working days after the deadline. Check with your assignments' teacher.
- If you are unable to attend the group presentation of Assignment 2, you should inform your assignments' group companions and contact your assignments' teacher. In that case you may present individually at a time no later than May 25 after agreement with your assignments' teacher.

Written examination:	**Thursday May 30, 14:00 - 19:00** Location to be Announced
Re-examination:	**Tuesday August 20, 08:00 – 13:00** Location to be Announced

NOTE: Remember to sign up for the examinations at least ten days before it takes place. If you have re-registered with an older course code, you must contact the student office (expedition@stat.su.se) to sign up. If you forget to sign up for the examination, you will not be able to take the exam.

DESCRIPTION OF EXAMS AND GRADING CRITERIA

Data for Decisions (written group Assignment 1), 1.5 ECTS

The teaching goals examined are primarily goals I and II. The exam is a written assignment that consists of two parts and is completed in groups, each group consisting of no more than four students. The assignment is graded on a two-point scale where students can receive either a passing grade (G) or a failing grade (U). The grading criteria are described below:

Pass: The assigned population is described in a way that enables students to perform statistical decision making. Suitable diagrams, tables and descriptive statistics are presented in a correct and clear manner. These diagrams, tables and descriptive measurements should also be created in some statistical programming language. All problems have been solved, and the written assignment has been submitted before the deadline and in accordance with the assignment instructions.

Fail: Any of the following: Some problems are unsatisfactorily solved or are not solved at all. The population is described inadequately such that statistical decision making is not possible. Diagrams, tables or descriptive statistics are unsuitable or presented in an unclear manner. The assignment has not been completed before the deadline.

If an assignment handed in by the first deadline fails, but the revised assignment that is handed in before the second deadline passes, students will receive a passing grade (G).

Market Surveys (written group Assignment 2), 3 ECTS

The teaching goals examined are primarily goals I and III. The exam is an assignment that consists of two parts and is completed in groups; each group should consist of no more than four students. The assignment is comprised of a written report and an oral presentation. The assignment is graded on a two-point scale where students can either receive a passing grade (G) or a failing grade (U). The grading criteria are described below:

Pass: An adequate survey plan is presented and a questionnaire with relevant and suitable questions is designed. Sampling from the provided data and parameter estimation has been done in accordance with the instructions. All problems have been solved, the written assignment has been submitted before the deadline in accordance with the assignment instructions, and the oral presentation has been performed.

Fail: Any of the following: Some problems are unsatisfactorily solved or are not solved at all. The survey design is inadequate (the proposed target population, frame or sampling method are unsuitable), the questionnaire consists of irrelevant or unsuitable questions. Sampling and estimation is incorrectly done. The assignment has not been completed before the deadline.

If an assignment handed in by the first deadline fails, but the revised assignment that is handed in before the second deadline passes, students will receive a passing grade (G).

Econometrics (written group Assignment 3), 3 ECTS

The teaching goals examined are goals I and IV. The exam is a written assignment that consists of two parts and is completed in groups; each group should consist of no more than four students. The assignment is graded on a two-point scale where students can either receive a passing grade (G) or a failing grade (U). The grading criteria are described below:

Pass: An analysis of the data material has been performed in an adequate manner and correct conclusions have been drawn based on the results. All problems have been adequately addressed, and the written assignment has been submitted before the deadline and in accordance with the assignment instructions.

Fail: Any of the following: Some problems are unsatisfactorily solved or are not solved at all, demonstrating a lack of understanding the task at hand and of the required methods for regression and time series analysis. The assignment was not submitted before the deadline.

If an assignment handed in by the first deadline fails, but the revised assignment that is handed in before the second deadline passes, students will receive a passing grade (G).

NOTE: All parts of each assignment must be solved and approved during the current semester in order for the entire assignment to be approved. Partial results of an assignment are not saved and partial credits cannot be transferred to future semesters.

Statistics for Economists, Examination, 7.5 ECTS

The learning goals examined are goals I and IV and are examined with an individual written test. Students can receive a maximum of 100 points, and a minimum of 50 points is required for a passing grade. The examination consists of two sections. A multiple-choice section where students are required to select one of five answer alternatives, this section makes up approximately 60% of the total score. The second section involves presenting detailed solutions to exam problems; this section makes up approximately 40% of the total score.

The examination is graded on a seven-point scale. To receive a passing grade, students must obtain an A, B, C, D or E, where A is the highest grade and E is the lowest passing grade. Grades F and Fx are failing grades where F is lower than Fx. Students that receive a passing grade are not eligible for re-examination.

A: Excellent. The student has correctly solved and analyzed basic statistical problems that reflect the course material in a well-structured manner. Furthermore, the student has demonstrated the ability to solve problems that have not directly been explored in the course material. The student is also able to choose suitable methods for analysis and clearly motivate their choices. At least 90 points are required on the written examination to receive an A grade.

B: Very good. The student has in a well-structured and correct manner solved and analyzed basic statistical problems that reflect the course material and that are directly explored in the course material. The student is also able to conduct a nuanced discussion regarding which conclusions they can draw from their statistical analysis. 80-89 points are required on the written examination to receive a B grade.

C: Good. The student has in a well-structured and correct manner solved and analyzed basic statistical problems that reflect most of the course material and that are directly explored in the course material. The student is also able to choose suitable methods for analysis and draw conclusions from, interpret and discuss the results of their analysis. 70-79 points are required on the written examination to receive a C grade.

D: Satisfactory. The student has correctly solved and analyzed basic statistical problems that reflect most of the course material and that are directly explored in the course material. Students are able to draw conclusions from and interpret results. 60-69 points are required on the written examination to receive a D grade.

E: Adequate. The student can present correct solutions and analysis to statistical problems that reflect enough of the course material and that are directly explored in the course material. The student is also able to interpret the results from their analysis. 50-59 points are required on the written examination to receive an E grade.

Fx: Fail, inadequate. The student fulfills some but not all requirements for an E grade. 40-49 points are required on the written examination to receive an Fx grade. Re-examination is required.

F: Fail, totally inadequate. The student has not demonstrated the ability to perform statistical analysis or solve basic problems in statistics, which are directly discussed in the course material. 0-39 points on the written examination will result in an F grade. Re-examination is required.

Approved tools and aids – plagiarism and cheating

The three hand-in assignments are executed in groups. Naturally discussion and collaboration between group members is encouraged. Note however that grades are set individually and can vary between group members, and that it is the individual's performance in the group work that is examined. Cooperation between groups is also allowed, however all groups must submit a unique report. Plagiarism of all types is prohibited, including AI-generated text.

The use of AI tools for the improvement of an originally self-written text is not permitted. Text-matching software and AI-generated text detectors are used by the department.

The home exam is to be done individually. During the examination, no forms of collaboration or discussion are allowed. More information about the exam will be given during the course and via Athena.

Use of unauthorized means of assistance during examinations or in other ways attempts to mislead during exams or when study performance is to be otherwise assessed, will be reported in accordance with university rules.

COURSE LITERATURE AND OTHER TEACHING MATERIALS

NCT = Newbold, P. (2023). Statistics for business and economics. 10th ed. Pearson.

JB = Bethlehem, J. (2009). Applied survey methods: A statistical perspective. John Wiley & Sons.

- Other course material such as lecture notes, practice exams, instructions, etc. will be uploaded onto Athena at relevant times during the course.
- The teaching plan and reading list will also be available on Athena when the course begins.
- We do not use the online resource *MyMathLab* of **NCT**; you do not need access to this material.
- The eighth and ninth editions of **NCT** can be used too. Note, however, that some exercises differ between editions.
- **JB** is available and downloadable for free via Stockholm University's Library (http://su.se/biblioteket/). Search on the title and/or author's name.

The lectures will mainly focus on the **NCT** course book, which covers basic statistical theory and methods, regression and time series analysis etc. covered in chapters 1-14, and 16. The JB course book covers survey methodology, and with the exception of two lectures where certain sections of JB will be discussed in detail, the content from this course book will only be touched upon lightly during other lectures. Students are expected to read assigned sections of JB on their own.

TEACHING FORMAT

Teaching consists of lectures (L1-L24), exercise sessions (E1-E14), computer exercises (CL1-CL3), and Recitations ("Jour"). See the *reading instructions* that are available on Athena for a reading list and for a list of problems from the literature that will be addressed at the exercise sessions. The full schedule is available on (link).

COMPULSORY ATTENDANCE

Attendance to the following sessions is mandatory:

- **Lecture 1 (Thursday March 21)**: Information regarding the course, course structure, contact information at the institution, home assignments, etc., is given.
- **Oral presentation (April 24 or April 25,** depending on which group you belong to**)**: Students will present parts of Home Assignment 2. If you are unable to attend, contact your *assignments' teacher* (see below) and inform your assignments' group as soon as possible.

Attendance to any other session in the course is optional. This means that you decide by yourself which lectures and exercise sessions you wish to attend.

EXAMINER, TEACHERS AND GENERAL INFORMATION

Teacher	Reception Hours	Email
Edgar Bueno – examiner – lectures – exercise sessions	*On agreement*	edgar.bueno@stat.su.se
Ralf Xhaferi – home assignments (groups 1, 5, 7 and 9) – computer labs – recitations	*On agreement*	ralf.xhaferi@stat.su.se
Albert Adlersson – home assignments (group 6) – computer labs	*On agreement*	albert.adlersson@stat.su.se
Diana Djabang – home assignments (groups 8 and 10) – computer labs	*On agreement*	diana.djabang@stat.su.se
Sebastian Hedberg – home assignments (group 3) – computer labs	*On agreement*	sebastian.hedberg@stat.su.se
Manuel Martellini – home assignments (groups 2 and 4) – computer labs	*On agreement*	manuel.martellini.nocentini@stat.su.se

The Department of Statistics is located on the **6th floor in house 4 at Campus Albano**.

More information about the Department of Statistics:
https://www.su.se/department-of-statistics/