



Faculty of Economic and Management Sciences

Fakulteit Ekonomiese en Bestuurswetenskappe
Lefapha la Disaense tša Ekonomi le Taolo

Department of Statistics

statistics 122

Study Guide

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statistics 122

1. stc122 Team

- Salomi du Plessis (Lecturer)
- Daniel Marques Salgado (Lecturer)
- René Stander (Lecturer)
- Paul J van Staden (Lecturer & Module coordinator)
- Philasande Mdletshe (Tutor)
- Jabulile Nhlapo (Tutor)
- Abraham Wannenburg (Tutor)

2. stc122 Details

Module content

Inferential concepts. Experimental and observational data. Measures of association, uncertainty and goodness of fit. Sampling error and accuracy of estimation. Introduction to linear regression, reduction of variation due to regression. Conditional distributions of residuals. Simulation based inference: conditional means and prediction intervals. Bivariate data visualisation. Supporting mathematical concepts. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

Module credits

- The module credits for stc122 is 13.
- Therefore, since 1 credit = 10 notional hours, a typical student requires 130 hours during the semester to successfully master the content of the module.
- These 130 hours include the scheduled discussion classes and lab sessions each week and also the time required to prepare for classes, to revise the work after classes, and to do the practical assignments.

Module prerequisites

- A final mark of at least 60% for STK110,
- **OR** an average final mark of at least 60% for WST133, WST143 and WST153,
- **OR** an average final mark of at least 60% for STK113, STK123 and STK121,
- **OR** an average final mark of at least 60% for STK133, STK143 and STK121,
- **OR** an average final mark of at least 60% for WST133, WST143 and STK121.

3. Study Material & Resources

Prescribed material

- Çetinkaya-Rundel, M. and Hardin J. 2021. *Introduction to Modern Statistics*, First edition, OpenIntro, <https://leanpub.com/imstat>
- van Staden, P.J. 2022, *Lecture Notes: Matrix Algebra & Calculus*, Department of Statistics, University of Pretoria, Pretoria, South Africa.

OpenIntro website

The prescribed textbook with corresponding videos, slides, data sets and labs can be found at the following link:

<https://www.openintro.org/book/ims/>

Maths Is Fun & Math Insight websites

The following websites will be useful for the topics on calculus and matrix algebra done in the final study theme of stc122:

<https://www.mathsisfun.com/>

<https://mathinsight.org/>

Statistical software



- On a computer:  and  Studio
- In the cloud:  Studio Cloud <https://rstudio.cloud/>

Discussion Board on clickUP

- **Students must post all questions on the Discussion Board on clickUP. Please adhere to the *Discussion Board Guidelines* available on clickUP.**
- In order to access the Discussion Board on clickUP, students must first read the relevant Discussion Board Guidelines and complete the Discussion Board Agreement on clickUP.
- stc122 team members will respond to Discussion Board posts and questions on Mondays to Thursdays between 09:00 and 15:00.
- **Only personal queries and questions that cannot be solved or answered through the Discussion Board on clickUP**, should be emailed to stc122.up@gmail.com. In your email, include STC122 and a short descriptive topic in the subject line and give your name, surname and student number at the end of your email.

4. Discussion Classes & Lab Sessions

| Session | Dates | Time | Venues & Platforms |
|--------------------|------------------------------------|---|--|
| Discussion Classes | Tuesdays Thursdays | 11:30 – 13:20 09:30 – 10:20 | Thuto 1-1 AE du Toit Auditorium |
| Lab Sessions | Mondays Wednesdays Thursdays | 07:30 – 09:20 07:30 – 09:20 07:30 – 09:20 | Informatorium Open Lab Informatorium Open Lab Informatorium Open Lab |
| Q&A Sessions | Mondays Thursdays | 16:30 – 17:20 14:30 – 15:20 | Centenary 4 Blackboard Collaborate (clickUP) |

- In the Discussion Classes, presented on campus by the lecturers, theoretical content will be discussed and practical applications in  and  Studio will be shown.
- **The lecturers and tutors will not have any consulting hours on campus or online.**
- Instead the lecturers and tutors will be available in the Informatorium Open Lab during Lab Sessions to provide assistance and guidance to students regarding the practical assignments. Although attendance is not compulsory, students are strongly advised to work on their practical assignments during these sessions.
- The lecturers and tutors will furthermore be available during the Q&A Sessions to answer questions regarding the practical assignments.
- Students should consult the weekly schedules on clickUP regarding the arrangements for the different sessions each week.

5. Continuous Assessment

- The final mark for stc122 will be obtained through continuous assessment during the semester. In effect, there will be no final examination in stc122.
- The assessments in stc122 will include practical assignments and a calculus quiz.
- Details regarding the weighted formula used to calculate the final mark in stc122 will be communicated on clickUP.
- All assessments will contribute to the final mark for stc122, but no single assessment will carry a weighting of more than 40% towards the final mark for stc122.
- Since students will be given sufficient time to complete and submit each assessment, no medical certificate or any other excuse will be accepted for missed assessments.
- To pass stc122, the final mark must **equal or exceed 50%**, while a distinction is achieved when the final mark **equals or exceeds 75%**.
- Since there will be no final examination in stc122, there also will be no supplementary examination in stc122. Students with final marks of **less than 50% but at least 40%** will be granted a special assessment at the end of the semester. Note that this special assessment will be on **all** the study themes and topics covered in stc122 and the maximum achievable mark will be 50%.
- The platforms and schedule for the different assessments will be confirmed and announced on clickUP as we proceed through the semester. The platforms may include but are not limited to clickUP and Gradescope.
- Where needed, it may be expected of students to present their assignment submissions orally.

6. Plagiarism & Dishonest Behaviour

- ❖ **NO GROUPWORK IS ALLOWED IN ANY ASSESSMENT IN stc122.**
- ❖ **STUDENTS ARE NOT ALLOWED TO SHARE THEIR CODE OR ANSWERS FOR AN ASSESSMENT WITH ANY OTHER STUDENTS.**
- ❖ **STUDENTS ARE NOT ALLOWED TO SUBMIT CODE OR ANSWERS OBTAINED FROM ANY OTHER STUDENTS FOR AN ASSESSMENT.**

Plagiarism is a serious form of academic misconduct. It involves both appropriating someone else's work and passing it off as one's own work afterwards. Thus, you commit plagiarism when you present someone else's written or creative work (words, images, ideas, opinions, discoveries, artwork, music, recordings, computer-generated work, etc.) as your own. Only hand in your own original work. Indicate precisely and accurately when you have used information provided by someone else. Referencing must be done in accordance with a recognised system. Indicate whether you have downloaded information from the Internet. For more details, visit the library's website at:

<http://www.library.up.ac.za/plagiarism/index.htm>

Dishonesty is a very serious matter which may cause you to be expelled from the university. Dishonest conduct:

- Disadvantages your own learning. Getting marks by cheating means that you did not earn the marks. You will not be able to do the work by yourself. It is better to get a lower mark for your own work, than to get a higher mark for someone else's work and risk being expelled.
- Damages your reputation and destroys trust.
- Is unfair towards the other students who are attempting to deserve their marks in an honest fashion.
- Undermines the integrity of the degree and can negatively impact your future employability.

Dishonesty includes sharing questions, answers, and code, as well as communicating (in any form) with classmates during assessments. Dishonesty also includes a failure to report the dishonest activities of others. If you are aware of dishonesty among your classmates, but do not report it, you are just as guilty as they are. We will not reveal the identities of students who report dishonest behaviour.

Should a student be suspected of plagiarism or dishonest behaviour, the details will be submitted to the University of Pretoria's legal department and an investigation will be launched. Penalties may range from receiving a mark of 0 to being expelled from the University of Pretoria and blacklisted at other South African universities.

7. Responsibilities

stc122 team members

- will keep students updated on clickUP in the *Important Information & Updates* section,
- will reply to Discussion Board posts on clickUP timeously (Mondays to Thursdays between 09:00 and 15:00),
- and will ensure that assessments are marked and graded in a timely and fair manner.

Students

- will check in on clickUP daily and read the *Important Information & Updates* section,
- will prepare for discussion classes by reading through the prescribed textbook, watching videos and doing the labs,
- will submit assessments before the submission due dates and times as announced on clickUP,
- **and will post all questions on the Discussion Board on clickUP and adhere to the *Discussion Board Guidelines* available on clickUP.**

8. Student Support

Students with special needs

- The University of Pretoria is keen to accommodate students with special needs. These needs are catered for without influencing academic standards. It is, however, the student's responsibility to inform the lecturer in good time of any special needs in order to ensure effective communication in this regard.
- Disability unit details can be found at:

<https://www.up.ac.za/disability-unit>

IT support

- The University of Pretoria offers IT support services to all registered students.
- More information and contact details can be found at:

<https://www.up.ac.za/it-services/article/2891993/student-computing-services>

Student counselling unit

- The University of Pretoria offers counselling services during the COVID-19 lockdown to students who are feeling overwhelmed.
- More information can be found at:

<https://www.up.ac.za/student-counselling>