University of Cape Town STA3022F Multivariate Analysis

Dr Şebnem Er

Table of contents

Overview

STA3022F is designed to introduce you to more advanced statistical techniques which could be usefully applied in your final year Honours project to analyse gathered data. The course will be oriented towards the analysis of survey-based data and will examine appropriate statistical methods to analyse multivariate data. Applications will be drawn from a wide variety of fields in the natural, business and social sciences. Emphasis will also be placed on the interpretation of computer generated results. The prerequisites are STA2020F/S or STA2005S or STA2007F/S/H. You may not register for STA3022F while you are busy with your 2nd year statistics courses.

Lectures

Monday - Thursday 4th period (11:00am) – Chris Hani

Lecturers

Figure 1: Photo credit Amanda Torr

Dr. Sebnem Er (she/her) is a senior lecturer at UCT, Statistical Sciences Department, and program coordinator for MSc Data Science degree at UCT.

I am located at PD Hahn Building 5th Floor, Room 5.55 however I will not be always in my office. If you would like to see me in person in my office please schedule a meeting by sending an email: Sebnem.Er@uct.ac.za

Dr. Juwa Nyirenda (he/him) is a senior lecturer at UCT, Statistical Sciences Department at UCT. Dr Juwa Nyirenda is located at room 6.68 PD Hahn. Please email Dr Juwa Nyirenda to make an appointment Juwa.Nyirenda@uct.ac.za.

Consultation: By email appointment

COURSE ADMINs: Ms Tandiswa Ntshongwa, Stats reception, 5th floor PD Hahn Tandiswa.Ntshongwa@uct.ac.za

Ms Nodumo Maqubela, Stats reception, 5th floor PD Hahn Nodumo.Maqubela@uct.ac.za

COURSE MATERIALS

There is no prescribed textbook for this course. Please follow the github link provided.

TUTORIALS

Tutorials will start on the FRIDAY of the first week of lectures. Tutorial lists will be posted on Vula during the first week of lectures. Tutorials are **not compulsory** but it is highly recommended that you follow one tutorial session per week.There is no hand-in assignment provided with the tutorial sessions. Tutorials on different subjects always start on Friday continued with the following Monday and Tuesday, ie. the first tutorial sessions start on the 21st of Feb Friday, and continue on the 24th of Feb Monday and 25th of Feb Tuesday.

COMPUTER LAB PRACTICALS

There are 8 computer lab practicals in total (see the weekly schedule for details) **starting in the first week of lectures**.Computer lab practical lists will be posted on Vula during the first week. Students are required to attend and register to *one 1hour compulsory lab practical session per week (for DP purposes).* **There will be an online test at the last 15 minutes of the practicals in the lab**. An attendance register will be kept via the lab test.

These computer lab practicals will require you to run the provided R codes and analyse a dataset with the relevant method you have learned during the week and interpret the results. After analysing your dataset you will be required to complete an online quiz based on your analysis and results. You will be provided with the lab R videos, detailed instructions in Word at the beginning of the practical week so that you can practice in advance and be ready for the online quizzes.

The computer lab practicals are **compulsory** and face to face for 45 minutes. The support during the dedicated hours are for your questions, you need to be well prepared beforehand. YOU CANNOT EXPECT YOUR TUTOR TO DO THE LAB FOR YOU!

TUTORIAL AND COMPUTER LAB GROUPS

All students will need to sign up for BOTH a Lab group AND a tutorial group on Vula. Each week there will be a tutorial which will take place in the Classroom.

You may ONLY swap tutorial and/or Lab groups on Vula, and **during the first two weeks** of semester ONLY. Your tutor is the person who will be running your Classroom tutorial. The weeks that you are in the Lab you may or may not be assisted by this tutor, as these classes are larger than the Classroom tutorials and so there will be several tutors helping students in these sessions. Your Lab sessions may or may not be at the same time as your Classroom tutorial sessions so you need to be aware of which tutorial is happening in which week!

You will be allowed to miss a maximum of two computer practicals without proof (medical certificate or other documentation), if you do not bring the proof, then these missed two practicals will have mark of zero but you will not get a DPR. If you miss three and more practicals without proof, you will get a DPR and will not be allowed to write the exam. There are eight practicals and only four medical certificates will be allowed for the practicals.

TESTS

Test 1 TBA 18:00 - 19:30 Venues to be confirmed

Test 2 TBA 18:00 – 19:30 Venues to be confirmed

DULY PERFORMED AND EXAMINATION REQUIREMENTS

1. DP will be calculated as follows:

Test 1 34%

Test 2 34%

APQM* 32%

*APQM: Average practical quiz marks

2. **It is compulsory to attend one practical session per week**.
3. You will be allowed to miss a maximum of two computer practicals without proof (medical certificate or other documentation), if you do not bring the proof, then these missed two practicals will have a mark of zero without being DPR. If you miss three and more practicals without proof, you will get a DPR. There are eight practicals and only four medical certificates will be allowed for the practicals.
4. Class marks below 35% will result in a DPR.
5. Weighting of DP and exam mark is 30%, 70%.
6. Only one medical certificate per student will be allowed for tests. If you miss both tests even with a medical certificate for both, only one of them will count towards your CR, the other missed test will have a mark of zero.
7. The approval of supplementary examinations is handled by the Faculty of the student in question.
8. The Department will not consider any appeals for supplementary examinations. Any person wishing to appeal for a supplementary examination should inform the department in writing and submit the letter at the Statistical Sciences reception.
9. The deferred examinations (illness and bereavement related) and any supplementary examinations for STA3022F will be held during the January/February SUPP/DE exam session, on a date set by the Examinations Office. NB: These examinations will not be held prior to this, as done by some other departments.
10. Notices in lectures and on the Vula site will be regarded as sufficient indication of any changed conditions or activities in the course.

9. NOTICES

All correspondence with the department must contain your student number.

10. COMPUTER USE

You will have access to SCILAB C, D for several services: the Web, e-MAIL, **R**, WORD, and EXCEL.

Lecture Content

All content for this course is available in this link. You will find all the necessary slides, pdfs, `R` examples in this link.