EC4305 Project Guideline (AY25/26)

1. Team project (total 40%)

- Presentation 10 %

- Empirical report 30 %

The aim of this project is to analyze (1) the distribution and dependence structures of real-world data, and (2) to conduct regression analysis. Please discuss with your team members and select a dataset that you find interesting and meaningful for interpretation.

You are free to choose any dataset, as long as it allows for insightful analysis. Within your team, you may write code, share results, and have discussions to deepen your understanding. Each team should submit one report. There is no page limit.

Project Teams

Group 1 (Monday section)

Team 1.

AGARWAL PARIDHI

CALLA KOH WEI YU

LUM JIE QI, STEFFI

NA MIN YEN

SINGARAVELAN DIVYASHREE

Team 2.

GERALD OH QIN SHENG

LOW RUO FEI EVIE

NG JING XUAN

OON JIN PENG

RYAN CHOW YI FENG

Team 3.

CHONG YI TING

HIEW SHANI

MILI VINOD

NG YUN XUAN

WOO ERN XI, ELSIE

Team 4.

ABIGAIL CHIOH AI XIN

HO REI CHI, RACHEL

LAU CELINE

MOHAMED AMALI BIN M AKBAR

PALANIVELU JAYASURIYA

Team 5.

HANG YIZHOU

HO XIN YI RACHEL

LIU RONG

QIN MULAN

Team 6.

GAN XIN YEE

HU TONGYU

JEREMY TOH EN JIE

QIAN LONG

SHANNEN KOH YING XUAN

Team 7.

CASPER CHENG YUE JUU

CHAN JIA LING

HO CHUNG TAT RANGI

N ASHWIN KUMAR

RITHIKA SREEKANTH

Team 8.

BAI ZIRUI

IHSAN NURHAKIM B NOOR ZAKI

KHO RUI-EN

NG HONG XUAN

TIFFANY LAM WAN KEI

Group 2 (Tuesday section)

Team 1.

CAI MUN JIA

JERON TAN KANG

KHALISAH BINTE SHARI

NG CHING WEN KELLIANNE

TAMMY ALEXANDRA WONG KAR YI

Team 2.

ABIGAIL TAN HUEY ERN

LIM SI EN

MELANIE GAN

YANG YIHAN

ZHANG TIANYUAN

Team 3.

HU SHIQI

LI MINYI

MATHIVANAN DIVYAA

SOW YUN TSING

SU ZHIMIN

Team 4.

GISELLE GABRIELLA SIM

RENAUD CHEE ZHE YOU

ROYSTON HOW LE XIANG

TAN JUN HAO

THIHA SOE SAN

Team 5.

AVI SAMIR BATRA

KAPUR ARYAMAN

KOK JIA YUAN, KEVIN

MA XIANZHOU

TANG WEI HAO

Team 6.

JEMMA CHEAH LI WEN

KOH WEN XI, DAWN

LOKE EE ZHEN

LOO WEN WEN

SOH JUN KAI, ALVIS

Team 7.

JOSIAH LEE JIA XUAN

LOW JUN CHEN JASON

RUSSELL NG JUNG HNG

TEO RUI XUAN RILEY

HAN SEUNGMIN LIAM

Team 8.

CHEN LEXI

IRVIN ASTONO SANG

MARTHA HENRIETTA SOETEDJO

MUHAMMAD NADHIF HARYADIPTA

TIAN FENGYAO

Important Dates

1) STATA/MATLAB session

- On Oct 27, 28 (during lecture hours)

- Feel free to contact Xiaochen (xiaochen@nus.edu.sg) for any technical difficulty regarding codes.

- You may use any software, but we recommend you to use STATA and MATLAB.

2) Paper Presentations (10%)

We read and discuss the following papers together.

On Nov 3 for Group 1 and Nov 4 for Group 2: Team 1 to Team 4

- Intergenerational Income Mobility in Singapore (Team 1)
- Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility (Team 2)
- Dependence Patterns across Financial Markets: a Mixed Copula Approach (Team 3)
- Growth Is Good for the Poor (Team 4)

On Nov 10 for Group 1 and Nov 11 for Group 2: Team 5 to Team 8

- Environmental Regulations, Air and Water Pollution, and Infant Mortality in India (Team 5)
- Evidence on the Impact of Sustained Exposure to Air Pollution on Life Expectancy from China's Huai River Policy (Team 6)
- Dynamic Gains from Trade: Evidence from South Africa (Team 7)
- The Role of Copulas in the Housing Crisis (Team 8)

The papers can be found in the Presentations folder on Canvas. Each team will present one paper for 30 mins.

3) Deadline for the team report: Dec 2 (Tuesday)

A **hard copy** of the individual report should be submitted **by Dec 2 to my mail box** (under Juwon Seo, on the sixth floor, AS2). Along with the hard copy, please email both Xiaochen and me the **soft copy of the report**. Each team has to email **all the software codes (e.g., Matlab files in 'm file') as well as data file**. Not to miss out your submission, please email me with the title in the format of,

[EC4305 team project] (group and team number)

e.g., [EC4305 team project] Group 1. Team 3.

Xiaochen's email address is, xiaochen@nus.edu.sg.

My email address is, ecssj@nus.edu.sg

What to Submit?

The report must include two sessions.

Session 1: Distribution and Dependence Analysis

Focus on the estimation and inference of distributions and dependence structures.

- You may choose two variables for your analysis (to simplify things).
- If you use time-series data, please ensure stationarity.
- If your dataset includes more than two variables (e.g., stock returns A/B/C), you may present pairwise estimation results.

[Example Data Sets]

- Parental income and child's income
- Husband's income and wife's income (assortative mating)
- Dependence between stock price and trading volume in the Chinese stock market
- Income and consumption
- Exchange rate stability, capital account openness, and monetary policy independence

[Your analysis should include]

- Description of the dataset, source, and variable definitions
- Summary statistics (mean, variance, correlation, covariance estimates etc)
- Distribution test (for marginal distributions) e.g., normality test
- MGF estimates
- Plot of univariate empirical distributions
- Scatter plot of the integral transformed data
- Copula estimation results (MLE with parametric, semiparametric, or nonparametric margins and copula), including AIC, BIC, and likelihood values
- Your own interpretation and analysis
- Include a concise review of relevant literature and references

Session 2: Regression Analysis

Focus on regression modeling and inference using your dataset. You may use the same dataset as in Session 1 or choose a different one.

[Example Data Sets]

- The effect of education on income (economics of education)
- The effect of class size or school resources on student performance (education policy)
- The effect of minimum wage laws on youth employment (labour economics / policy evaluation)
- The effect of cash transfers or microcredit on household consumption (development economics)
- The effect of health expenditure on life expectancy (cross-country policy relevance)
- The effect of advertising expenditure on sales (business application)
- The effect of interest rates, household income, and unemployment rate on housing prices
- The effect of GDP growth, inflation, and monetary policy indicators on stock returns

[Your analysis should include]

- Description of the dataset, source, and variable definitions (if different from Session 1)
- Summary statistics of the variables used in the regression
- Estimation of regression models (linear, nonlinear, instrumental variable (IV), fixed/random effects if panel data, etc.)
- Interpretation of coefficients (magnitude, sign, and statistical significance)
- Discussion of economic or practical meaning of the results
- Your own interpretation and conclusion
- Literature review and references in proper format

📌 Additional Requirements:

In addition to the required components listed above, you are encouraged to be as creative as possible. You may incorporate:

Methods learned in this course

Methods learned in other courses

Any creative approaches you would like to try

Especially, newly developed or innovative methodologies of your own

The more you attempt, the higher your score will be. (Note: You will not be penalized even if an attempt does not produce meaningful results.)

Please focus on documenting the wide range of methods you tried, rather than on detailed interpretation of results (according to the school's evaluation policy, the emphasis will be placed on demonstrating the range of attempts, rather than on detailed interpretation of results, since interpretation can be easily automated by AI).