

# 統計学Ⅳ (Statistical AnalysisⅣ)

科目ナンバリング ECS-204

選択 2単位

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## 1. 授業の概要(ねらい)

This course will offer the opportunity to study the statistics from the basics to intermediate. It consists of three parts and each part is taught by one of following three professors; Taku SUZUKI , Shiho YUKAWA, and Hiroshi OCHIAI.

Statistics is used in various fields, it is important to understand the basic statistics.

In the lectures, we will study the fundamental statistics, data visualization, and inferential statistics.

Furthermore, to understand the real data analysis, we will also study several methods of regression analysis .

## 2. 授業の到達目標

Understand

- the fundamental statistics and its application for basic data analysis,
- the regression analysis.
- the methods of statistical hypothesis testing

## 3. 成績評価の方法および基準

The following percentage breakdown will constitute your final grade.

Participation (45%): Each participation is counted as 3% of your whole performance.

Exercises (55%): Exercises as Term Exam are to be held at the end of each part. 20% is assigned to part I (Suzuki) and part II (Yukawa) respectively, and 15% is assigned to part III (Ochiai)

## 4. 教科書・参考文献

教科書

Each professor distributes course materials.

## 5. 準備学修の内容

Review of each lecture is very important.

Homework will be assigned several times. You must do the homework by next lecture.

## 6. その他履修上の注意事項

It is desirable to check the course materials beforehand if you think your preparation is not enough. Basically, MS Excel is often used as a tool for calculation, and sometimes R is used in Part 2.

## 7. 授業内容

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| 【第1回】  | Introduction   |
| 【第2回】  | F distribution and review of other distribution                |
| 【第3回】  | Statistical hypothesis testing (1) One sample problems         |
| 【第4回】  | Statistical hypothesis testing (2) Two sample problems         |
| 【第5回】  | Statistical hypothesis testing (3) Test for variance and other |
| 【第6回】  | Review and Exercise(1)   |
| 【第7回】  | Essence of econometrics (1) OLS                                |
| 【第8回】  | Essence of econometrics (2) Squared term                       |
| 【第9回】  | Essence of econometrics (3) Interaction term                   |
| 【第10回】 | Essence of econometrics (4) Dummy variable                     |
| 【第11回】 | Review and Exercise(2)   |
| 【第12回】 | Advanced Econometric Methods (1) Stochastic Processes          |
| 【第13回】 | Advanced Econometric Methods (2) Unit Roots                    |
| 【第14回】 | Advanced Econometric Methods (3) Cointegration                 |
| 【第15回】 | Review and Exercise(3)   |