

Course title	Introductory Statistics for Decision Makers.		
Instructor	Carl Sherwood	Lecture category	Credits
		2nd semester	1

Description

Welcome to INTRODUCTORY STATISTICS FOR DECISION MAKERS. The course covers a variety of techniques applicable to the presentation, use, and interpretation of data. The main emphasis is on inferential statistics, with an understanding of estimation and hypothesis testing being the central theme of the course.

Theme and Objectives

Course Theme:

For students to develop the ability to apply inferential statistics techniques, independently solve practical problems, then explain their findings using everyday language.

Course Objectives:

After successfully completing this course, students should be able to:

1. Recognise, interpret, and use fundamental statistical terminology in practice.
2. Describe the statistical techniques needed to solve particular problem types.
3. Conduct statistical analysis of data so as to draw statistical conclusions.
4. Communicate statistical findings for practical and professional use.

Schedule

DAY	Date	Time	Learning Activity
1	4/1/16	10:40 – 12:10am	Lecture 1 - Introduction to statistics and Data collection
		1:20 – 2:20pm	Lecture 2 - Summarising and Describing numerical data
		2:20 – 2:50pm	Class activity (MOSS book creation)
2	5/1/16	10:40 – 11:10am	MOSS review and Peer feedback from Day 1
		11:10 – 12:10am	Lecture 3 - Normal Distribution
		1:20 – 2:20pm	Lecture 4 - Sampling Distributions
		2:20 – 2:50pm	Class activity (MOSS book creation)
3	6/1/16	10:40 – 11:10am	MOSS review and Peer feedback from Day 2
		11:10 – 12:10am	Lecture 5 - Confidence Intervals
		1:20 – 2:20pm	Lecture 6 - Hypothesis testing
		2:20 – 2:50pm	Class activity (MOSS book creation)
4	7/1/16	10:40 – 11:10am	MOSS review and Peer feedback from Day 3
		11:40 – 12:10am	Class activity – finalise MOSS presentations
		1:20 – 2:20pm	Class activity - deliver MOSS group presentations
		2:20 – 2:50pm	Class feedback (survey completion)

Evaluation (assessment)

Note:

MOSS stands for **My Own Statistic Story**, and forms 100% of the course assessment. Class activities will progressively assist in creating, writing, and compiling the pages of each MOSS book. Assessment of these pages will be as follows:

- 60% progressive in class assessment, with 20% awarded for each of Days 2, 3, and 4
- 40% awarded for the group presentation of their completed MOSS book on Day 4.

Description of MOSS activity:

- With a class size of 12 students (for example), students form 4 groups of 3 students.
- At the end of each lecture, students are to apply what was covered in the lecture. They are to do this by imagining they work as a quality control manager in a manufacturing business who uses statistical analysis.
- The choice of product used by groups for their MOSS book is up to each group to decide. Examples they might like to consider could include supermarket products such as a bottled milk/water, eggs, bags of rice, M&M's (or Kit-Kat), rice crackers etc. Ideally, variables such as weight, length, or height should be able to be measured, with data collected from products in stores then analysed.
- Pages to be written and presented in English.
- In class discussion and feedback during classes to be **mostly** in English, but Japanese can be used to explain difficult technical aspects if needed.

MOSS book detail requirements:

1. Each group can use one A3 page for each of 6 lecture topics. 6 pages in total required for the MOSS book to be completed.
2. Students create each MOSS page at the end of Days 1, 2, and 3 (can work on after class, but the intent is that the pages are to be mostly created and completed during class time).
3. At the start of Days 2, 3, and 4, students provide feedback to each other, by working in pairs of groups and on the work done during the previous day (30 minutes total, 15 minutes feedback each group). At the end of this session, each group marks the other group's work out of 20 marks (using a marking template with the criteria shown below). This mark will be used by the lecturer to decide on the group's final mark. Feedback offered during this time is to be used by each group to improve their MOSS pages.
4. On Day 4, students should reflect on all feedback during the course and prepare their finalised MOSS book pages during the morning session for a class presentation. Maximum of 6 pages, covering 6 lecture topics to be displayed around the room. Students are to present their work to the class using a 10 minutes overview, with 5 minutes feedback (from Carl and students).

Marking guide criteria that will be used for 20% daily mark over 3 days (each criteria out of 4 marks), and also for the final group presentation for 40% (each criteria out of 8 marks):

1. Statistical **story is creative, clear**, and is relevant to context.
2. Recognised and correctly used **appropriate statistical terminology**.
3. Described the **statistical techniques** need to solve particular problem types.
4. Conduct **statistical analysis of data** so as to draw statistical conclusions
5. **Communicate statistical findings** for practical and professional use

Information Regarding Preparation, Review and Related Subjects

I will assume that students have a good knowledge of algebra and can rearrange equations. The ability to use Excel would also be helpful, as well as some previous experiences in a basic statistics course. Also, knowledge of English at least at intermediate level is required.

To help prepare prior to the course, a series of YouTube videos will be made available to students. These videos have been created by Carl, are in English, and vary in length from about 3 to 7 minutes. They both review and expand on the material that will be covered in the lectures during the course.

Office Hour and Contact Information

Before starting the course, please contact Maruyama sensei by e-mail:

maruyama@econ.kobe-u.ac.jp

During the course, English extension sessions will be set after the lectures on Day 1, 2, and 3.

Message

Students seeking careers in business development, management, sports administration, marketing, engineering, medicine, scientific inquiry, or any career requiring analysis of numerical data in decision making, should attend this course. Students quickly learn how to apply theoretical lecture material to real world practical situations. Real world sample data is initially collected by students at the start of the course. Then, through interacting with fellow students during the course, students learn how to apply course concepts so as to draw meaningful, practical conclusions from analysing sample data.

The handouts (PowerPoints) used in each class will be made available for students in printed form as well as online. Students are responsible to come to class and collect any handouts. Class attendance is expected in order to understand the material being taught. Questions can be addressed anytime during the lectures or, if you prefer, at the end of the lectures.

Textbook

No textbook is required to be purchased. The topics covered are standard topics presented in any introductory inferential statistics theory textbook (one that is at intermediate level). In addition, chapters from a textbook written by Carl are anticipated will be made available to students online, both prior to and during the course. These online chapters relate directly to the material covered in the course and should help in your preparation and study during for the course.

Reference Materials

Access to the lecture's own library of YouTube video materials covered in this course will be made available free to students. In addition, access to textbook chapters written by the lecturer and used in this course, will also be made available online free to students by the textbook publisher.

Classroom Language

This course offers you the opportunity to master the key concepts in a strictly English environment.

Keywords

Inferential statistics, statistical terminology, statistical techniques, MOSS book