

主導課程五：統計學暨實習 (Statistics with Recitation)

課程基本資料

開設學校：臺灣大學

開授教師：李宗穎

班級人數：各聯盟校自行訂定

開課級別：大學部

授課語言：英文

學分數：4

授權方式：條件式

協同教師學經歷建議：

To support the delivery of the Statistics course, which will be offered by the lead instructor at NTU, each participating institution is required to appoint a coordinating lecturer. This lecturer should have an academic background in statistics and be fluent in English, as the course will be conducted in English. The coordinating lecturer is expected to assist with local student support, hold office hours, and grade quizzes and exams.

主導課上課時間 (影片將於當日課後於NTU COOL上架)：

Tue 1:20-3:10 PM (recitation session)

Wed 9:10-12:10 AM (lecture)

是否接受非同步授課：是

實體期末評量時間：The final exam will be held from 9:30 AM to 12:00 PM on December 10, 2025.

課程網頁：NTU COOL

聯盟學校修課人數與助教比例：每 30 名學生需 1 名助教

課程概述

This course introduces students to the core concepts and methods of statistics, with a focus on learning how to use data effectively in the face of uncertainty. Key topics include data visualization, descriptive statistics, probability, statistical inference, and linear regression. Emphasis will be placed on building intuition and practical understanding rather than mathematical rigor.

Students will develop the skills to make sense of data, draw meaningful conclusions, and communicate results with clarity and confidence. The tools and thinking developed in this course are valuable for making informed decisions and conducting research across a wide range of disciplines. They also form the foundation of many modern applications, including machine learning and artificial intelligence.

指定書目

Diez, D. M., Barr, C. D., & Çetinkaya-Rundel, M. (2019). *OpenIntro Statistics* (4th ed.). The textbook is available as a free PDF download at <https://leanpub.com/openintro-statistics>.

參考書目

Rosling, H., Rosling, O., & Rönnlund, A. R. (2018). *Factfulness: Ten Reasons We're Wrong About the World--and Why Things Are Better Than You Think*.

課程大綱

| <u>Week</u> | <u>Date</u> | <u>Topic</u> | <u>Note</u> |
|-------------|---------------|---|--------------------------------------|
| 1 | Sep 2, 3 | Course introduction | |
| 2 | Sep 9, 10 | Introduction to Data | |
| 3 | Sep 16, 17 | Summarizing Data | |
| 4 | Sep 23, 24 | Probability | Sep 23: Quiz 1 (Ch 1-2) |
| 5 | Sep 30, Oct 1 | Distribution of Random Variables | |
| 6 | Oct 7, 8 | Foundations for Inference (I) | Oct 7: Quiz 2 (Ch 3-4) |
| 7 | Oct 14, 15 | Foundations for Inference (II) | Oct 14: Quiz 3 (R skills for Ch 1-4) |
| 8 | Oct 21, 22 | Midterm exam (9:30 AM - 12:00 PM, Oct 22) | |
| 9 | Oct 28, 29 | Inference for Categorical Data (I) | |

| | | | |
|----|------------|---|-------------------------------------|
| 10 | Nov 4, 5 | Inference for Categorical Data (II) | |
| 11 | Nov 11, 12 | Inference for Numerical Data (I) | Nov 11: Quiz 4 (Ch 5-6) |
| 12 | Nov 18, 19 | Inference for Numerical Data (II) | |
| 13 | Nov 25, 26 | Introduction to Linear Regression (I) | Nov 25: Quiz 5 (Ch 7) |
| 14 | Dec 2, 3 | Introduction to Linear Regression (II) | Dec 2: Quiz 6 (R skills for Ch 5-7) |
| 15 | Dec 9, 10 | Final exam (9:30 AM - 12:00 PM, Dec 10) | No class on Dec 9 |
| 16 | Dec 16, 17 | Study day (no class) | |

成績評量方式

- Quiz: 30%
- Midterm: 30%
- Final: 40%

課程要求

This is an English-medium course. English must be used at all times in class, including for homework, quizzes, exams, and all other course-related work.

We will use NTU COOL to share course materials and announcements. You are expected to check both NTU COOL and your school email daily to stay informed and up to date.

All cell phones and other communication devices should be turned off or silenced during class. Students may be cold-called to answer questions. Active and voluntary participation in discussions is highly encouraged.