

統計與生活

Instructor: 統計系 歐士田 (Austin)
2011 Fall

Austin's resume

- Education

- 淡江大學數學系數統組 (Bachelor)
- 美國德州農工大學統計所 (Master and Ph. D.)

- Working experience

- 靜宜應數系 (1994~2000)
- 淡江統計系 (2000~2003)
- 醫藥品查驗中心 (CDE, 2003-2005/8)
- 台北大學統計系 (2005/8~)

Austin's information

- Office Hours

- Mon (台北, 9-11AM, 25024654-18287);
- Wed (三峽, 10-4PM, 26748189-66765);
- Thur (台北, 10-4PM, 25024654-18287); or make appointments by e-mail.

- E-mail: stou@mail.ntpu.edu.tw

- Office phone

- 25024654-18287 (台北); 26748189-66765 (三峽)

Course evaluation

- Attendance (15%)
- Semester-project (85%, team work)

Course content

- Introduction of Statistics
- Statistics in the real life- Case studies
- Semester-project
 - Quality control circle
 - Sharing the case study
 - Team work
 - Algorithm of project.....



What do you feel about
Statistics?

FAQ for statistical learning

- Statistics can be learned only from the school?
- Statistics is just a way to get some numbers?
- Statistics is meaningful to you?
- How can statistics help people in the real life?
- What the role does the statistics play in the world?

統計學習現況

- 統計學習意願低落的可能因素包括學生的數理能力及態度（價值觀），社會環境的改變，師生們的互動關係，及同儕之間的影響。
- 學生因外在環境的誘惑（集中力不佳），加上基本的數理能力不夠，造成學習上的障礙，學生因而無法產生該有的自信心。
- 在師生們的互動性不足的情況下，老師與學生的距離越來越遠，不但老師無法瞭解也無從瞭解學生真正困擾之處，如數理基礎學生也無法感受老師的用心，師生們的情感也在此惡性循環下被犧牲。即使有再好的師資、學生、教學設備及行政體系，仍無法形成一個有活力的教學環境。

Course motivation

- Where is the statistics in the real life?
- How to transform the topics or questions in the real life into the statistical questions?
- How to accurately apply the statistical tools to solve the questions arising from the real life?
- How to effectively and successfully work with people for achieving the statistical process (團隊合作)?

Possible things you may be afraid...

- Learning mathematics or statistics
- Learning English
- Development of personal characters
 - Self-confidence
 - Communication/Expression
 - Association
 - Logic

Expectations from this course

- Establish the statistical thinking process for dealing with the practical questions.
- Familiar with the process for the application of statistics to the practical questions.
 - Clear objective
 - Strategy for achieving the objective
 - Data collection
 - Data analyses (statistical tools)
 - Summary and conclusion
- Communication skills with people

Things learned from the project

- Build up your confidence for using the statistics to understand the life. (Self-confidence)
- Train your ability on organizing the project which is totally unknown to you. (Organization)
- Show you how to collect the prior information, analyze the data and make decision. (Decision)
- Establish the ability on communicating with people. (Expression)

Possible difficulties encountered from the project

- Establishment of consensus from teammates (Trust each other)
- Hard to find the appropriate research topic (less prior experience)
- Set up the corresponding process
- Time control
- Distribution of project loading
- Statistical techniques (sampling, data management, statistical methods)

專題種類

- 問題解決方式（如問卷調查）
- 文獻探討方式（故事結構）
- 心得分享方式（報導結構）
- 探索性方式（突發奇想）
- 深入追蹤方式（定點追蹤）
- 資料統計分析方式（揭發事實）
- 綜合方式

Possible Statistical topics

- Statistics for management and economics (商業與管理統計)
- Biostatistics (生物統計)
- Data Mining (資料挖掘)
- Governmental statistics (政府統計)
- 生活統計 (報章雜誌, 社會熱門主題, 食衣住行娛樂等相關主題)

Basic elements in the project

- Purpose and motivation of the project.
- Executive process of the project. (With the help of QCC process)
- Log report of the project.
- Complete typed report for the project.

Quality Control circle (品管圈, QCC)

- A Quality Control circle
 - is a **small group** of workers (6-10 persons) from **the same work unit** who meet regularly
 - to identify, select and analyst work-related problems.
- The group then put forwards suggested solutions to the Management for consideration and decision..
- Subsequently, they implement the decisions of the Management..

Philosophy of QCC

- Based on the concepts of
 - participative management and
 - Humanistic (人性的) management.
- Humanistic management refers to management which gives importance to people and their feelings because people are the most valuable asset of a department/office..

Philosophy of QCC

- Participative management means that
 - every worker regardless of his/her position in the organisation is given the opportunity mechanism
 - whereby workers are able to participate in the problem-solving process
 - leading to improvement of quality and productivity in their department/office..

The objective of QCC is to improve and upgrade quality of work through.....

- (a) The problem solving capability of the workers;
- (b) Team work;
- (c) The cultivation (培養) and assimilation (吸收) of positive values and work ethics;
- (d) Involvement and interest in work;

The objective of QCC is to improve and upgrade quality of work through.....

- (a) High motivation for work; and
- (b) Awareness of responsibility towards
 - oneself,
 - the group,
 - the department/office and
 - the nation..

Basic Principles Of QCC

- (a) Workers are recognised as the most valuable resource along with other management resources;
- (b) Development of workers as useful members of the department/officer;
- (c) Participation and support from all levels;
- (d) Team-work;
- (e) Constant encouragement of creativity; and
- (f) The projects are related to daily work..

Benefits of QCC

- Closer relationship between the workers and Management;
- Cultivation of cooperation among workers;
- Job satisfaction;
- Increased motivation to work;
- Building of self-confidence;
- Development of leadership among workers;
- Encouragement of creativity among workers; and
- Improvement of systems and work procedures..

你期望參與如此充滿活力的工作環境並
接受如此有幫助的訓練嗎？

品管圈的基本思考方向

- 我們不知道真正的問題有哪些，甚至不知道主要的問題在哪裡。 因此，
- 我們要教如何分析以找出主要的問題。 而且，
- 我們要教如何列出主要問題可能的清單，在由中找出真正的問題。
- 最後要幫忙找出解決的方法，同時一定要教如何在掌握的現況中，保持成果。

所有參與者都可以獲得以下的好處

- 品管圈會議中可以有機會在大眾面前講話。
- 彼此結交更多的朋友，有助於營造工作場所愉快的氣氛。
- 更能意識到本身工作的重要性與職責，因而對自己的工作更感到自豪。
- 改善了個性，與養成專心處理問題的能力。
- 品管圈的經驗也可以應用到家庭生活上。

QCC執行流程與注意事項

- 根據圈員意願與專題特色決定適合之圈名
- 圈員們共同決定專題之主題(選取理由)
- 執行專題之工作進度與圈員工作之分配
- 收集專題所需之事前訊息與資料（即現況把握與數據收集）
- 要因分析與評定
- 擬定執行對策及分析工具與方法
- 確實執行所指派之工作並隨時討論
- 檢討工作進度及對策改進
- 整理所得結應果並撰寫報告

Team work 之注意事項

- Follow steps for QCC.
- Fully support the assigned work.
- Project is not only learning the new things but also making friends with teammates.
- The more communication and patience the team has, the more work has been done smoothly.
- Main focus: Care the contribution you can make, instead of give the hard time to teammates!