University of Toronto
Department of Statistical Sciences
STA437/2005 Methods of Multivariate Data

Handout: Course Information   Fall 2023

Course: STA437H1 F LEC5101

Teacher: Mehdi Molkaraie

Email: `mehdi.molkaraie@utoronto.ca`

Teaching Assistants: TBA

- Shupeng Chen, `shupeng.chen@mail.utoronto.ca`
- Miaoshiqi Liu, `miaoshiqi.liu@mail.utoronto.ca`
- Peng Liu, `penn.liu@rotman.utoronto.ca`
- Rongqian Zhang, `rongqian.zhang@mail.utoronto.ca`

Schedule:

Wednesdays from 18:00 to 21:00 at MS 3154

Course Reference:

Richard Johnson and Dean Wichern, *Multivariate Statistical Analysis*, 6th Edition, Pearson, 2007.

Evaluation for undergraduate students:

Item	Credit	Description
Homework	No credit	Will be posted on Quercus
Online Quiz	15%	Quercus quizzes
Midterm	35%	In person
The Final Assessment	50%	In person; Covers all the material

Evaluation for graduate students:

Item	Credit	Description
Homework	No credit	Will be posted on Quercus
Online Quiz	10%	Quercus quizzes
Midterm	25%	In person
The Final Assessment	50%	In person; Covers all the material
One Research project	15%	Will be posted on Quercus on Oct 23

Graduate students are required to do one research projects.

- **No collaboration with anyone else in (or outside) the course is permitted on the quizzes, the midterm exam, and the final assessment. During all the quizzes/exams, you can use/consult:**

  - A non-programmable calculator.
  - Two pages (letter-size and double-sided) of personal notes.

- **Exam Schedule:**

  Online Quiz: Available before the reading week (details will be posted on Quercus).

  Midterm: Wednesday, November 15, from 6pm to 9pm (in person).

  The Final Exam: Will be scheduled by the Faculty (in person).

- **Office Hours:**

  Weekly office hours will be held at the Sidney Smith Building, floor G, SS623B. Details will be posted on Quercus during the second week of the lecture.

- **Policies:**

  - **Absence declaration:** If you become ill and it affects your ability to do your academic work, consult me right away. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. If you cannot submit a VOI due to limits on terms of use, you can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI (including dates, academic impact, practitioner's signature, phone and registration number).

    * For more information on the VOI, please see
      http://www.illnessverification.utoronto.ca.
    * For information on Absence Declaration Tool for A&S students, please see
      https://www.artsci.utoronto.ca/absence.
    * If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

  - **Missed tests:** 0% will be recorded for missed tests unless you request accommodation from your instructor as as explained above. If missed for a legitimate reason, at most 1 test can be accommodated by shifting its weight to the final assessment. If more than one test is missed for legitimate reasons, however, an alternative assessment will be arranged at the instructors' discretion, which may have a different format (e.g., oral assessment).

  - **Regrading requests:** After releasing the quiz and midterm grades, you will have one week to ask for regrading. Details will be announced on Quercus.

- **Prerequisite:**
  STA302H1/STA352Y1/STAC67H3/STA302H5 (MAT224H1/MAT247H1 recommended)

- **Topics:**

  - (Brief) Introduction to matrix algebra and random vectors,
  - Sample geometry and random sampling,
  - Multivariate normal distribution,
  - Multiple regression analysis,
  - Principle component analysis, and
  - (if time permits) Factor analysis.

- **Notice:**

  Course videos and materials belong to the instructor, the University, and/or other source depending on the situation, and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the instructor.

- **Students with Disabilities or Accommodation Requirements:**

  Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting

  http://www.studentlife.utoronto.ca/as/new-registration

  Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

- **Academic Integrity:**

  All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Speak to me or your TA for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at

  http://www.writing.utoronto.ca

  Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see

  https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity

  and

  http://academicintegrity.utoronto.ca