

Department of Mathematics & Statistics, McMaster University

Statistics 4D03/6D03: Intermediate Probability Theory

Course Outline Fall: 2019/2020

**Instructor:** Dr. S. Feng, HH/211, Extension 24723

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**Lectures:** Mo, Thu 3:30pm - 4:20pm HH/305  
Tu 4:30pm - 5:20pm HH/305

**Office Hours:** TBA

**Main Reference:** Probability: Theory and Examples (5<sup>th</sup> edition) by Richard Durrett. Cambridge University Press, 2019

**Course Web:** <http://www.math.mcmaster.ca/fengs/S4D03-19.html>

**Course Contents:** Probability theory will be introduced in the framework of measure theory. The main topics include measurable and probability spaces, random variables, types of convergence, weak and strong law of large numbers, expectation and conditional expectation, characteristic function, continuity theorem, central limit theorem, infinitely divisible laws, martingales.

The course covers most sections of Chapters 1-3. Sections 4.1-4.3 will also be studied if time permit.

**Tests, Assignments and Exam:** There are five assignments, two tests and a final exam.

<b>Marking Scheme:</b>	Assignments	25% (5% each)
	Tests	30% (15% each)
	Exam	45%

**Test dates (in class):** Test #1: Tuesday, Oct. 8, 2019 (tentative)  
Test #2: Tuesday, Nov. 19, 2019 (tentative)

**Calculators:** The McMaster Standard calculator allowed for the tests and final exam will be Casio FX-991 or MS Plus. Please present your student identification card before the tests and final exam.

**The instructor and university reserves the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the**

**student to check their McMaster email and course websites weekly during the term and to note any changes.**

**Policy regarding missed work: If you have missed work, it is your responsibility to take action.**

Details concerning the missed term work and up-to-date MSAF information, please refer to the following urls:

<https://www.mcmaster.ca/msaf/index.html>

[http://academiccalendars.romcmaster.ca/content.php?catoid=13&navoid=2208#Requests\\_for\\_Relief\\_for\\_Missed\\_Academic\\_Term\\_Work](http://academiccalendars.romcmaster.ca/content.php?catoid=13&navoid=2208#Requests_for_Relief_for_Missed_Academic_Term_Work)

**Please note that the MSAF may not be used for term work worth 25% or more, nor can it be used for the final examination.**

#### **ACADEMIC DISHONESTY**

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at [http://www.mcmaster.ca/senate/academic/ac\\_integrity.htm](http://www.mcmaster.ca/senate/academic/ac_integrity.htm)

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copy or using unauthorized aids in tests and examinations.

#### **ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES**

Students with disabilities who require academic accommodations must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail [sas@mcmaster.ca](mailto:sas@mcmaster.ca). For further information, consult McMaster University's Academic Accommodation of Students with Disabilities policy.

#### **ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES**

## **(RISO)**

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students requiring a RISO accommodation should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

## **EXTREME CIRCUMSTANCES**

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.