# University of Regina
## Statistics 471/871–Time Series Analysis

**Section**: 001
**Lecture**: MWF 1130–1220 in Laboratory Building, room 206 (LB 206).

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**Office Hours**: TBA, or by appointment.

**Required Text:**

- Peter J. Brockwell, Richard A. Davis, *Introduction to Time Series and Forecasting*, second edition, Springer 2002.

**Other Required Materials:**

- ITSM 2000-V.7.1 (Student Version) software bundled with textbook.

**Course Description:**
Types of time series, stationarity, integrated autoregressive moving average models, model identification, parameter estimation, diagnostic checking, and prediction. Introduction to spectral analysis.

**Prerequisites:**
STAT 252 or 352 with a grade of at least 60%.

**Student Responsibilities:**
Undergraduate students should familiarize themselves with the *Responsibilities of Students* in Section 5.1, page 28 of the *Undergraduate Calendar*. Graduate students should be familiar with the relevant sections of the *Graduate Studies Academic Calendar*.

**Important Note About Prerequisites:**
As noted, the *Undergraduate Calendar* states that the prerequisites for Stat 471 are either Stat 252 or Stat 352 with a grade of 60%. The preface to the textbook notes that this course "requires only a knowledge of basic calculus, matrix algebra and elementary statistics at the level (for example) of Mendenhall, Wackerly and Schaeffer (2002). It is intended for upper-level undergraduate students and beginning graduate students." Both of these sets of prerequisites are consistent. However, as the course is intended for upper-level undergraduates and beginning graduate students, this course will be taught at a level appropriate for these students. The most important "prerequisite" is therefore neither formal nor stated. It is simply the mathematical maturity posessed by a student of upper-level undergraduate or beginning graduate student standing. As such, the performance expectations will be much higher than most students are accustomed to from their lower-level undergraduate courses.

**Grading Information:**
Your final grade will be determined by your performance in the course, including assignments, participation, attendance, office visits, and the final exam.

| Evaluation Type | Number | Percentage of Final Grade |
|---|---|---|
| Participation, Attendance, and Office Visits | | 60% |
| Assignments | 6 | 30% |
| Final Exam | 1 | 10% |

**Participation, Attendance, and Office Visits:**
As is evidenced from the syllabus and from the grading scheme, much of the onus is on the student to learn about time series. This course will be taught very much in the spirit of an advanced seminar. This means that it is possible to do no work, just show up to class and for office visits, and receive a grade of 60%. Higher grades will be earned only by those students who complete the assignments and the final exam. Furthermore, each student is required to schedule an appointment with me once before Spring break (February 18, 2005) and once after Spring break to discuss the course and your progress. Because of these grading policies, I will take a VERY dim view of students who decide not to attend class or make office visits. Undergraduate students should also familiarize themselves with the sections *Attendance* (Section 5.3, page 28) and *Deferrals* (Section 5.8, pages 29–30) of the *Undergraduate Calendar*.

**Assignments:**
As is the norm in a university course, it is impossible to learn all of the material just by attending lecture. It is vital that each student take an active role in his or her own education by attempting to solve problems. In fact, most of what you learn in this course will be the result of working exercises that are designed to reinforce key concepts, develop skills, and test your understanding of the material. Before you try working the exercises, however, do the reading assignment. Reading the text will help you review the important concepts before you start on the exercises. Some of the exercises are straight-forward, others are very complex. After each class meeting, you should work all problems assigned from the section discussed that class. Assignments will take on the average 15–20 hours. You are encouraged to talk with your classmates about the homework; you might even want to form a study group to work together on the most difficult homework problems. However, all problems you submit must be your own work. ***It is dishonest, and a serious University of Regina violation, to submit someone else's work as your own.***

**Final Exam:**
There will be a take-home final exam distributed in class near the end of the semester which will be due by noon on Monday, April 25, 2005.

**Email:**
Email will be a significant form of course related communication between both students and the instructor. Therefore, please check your email regularly for course updates and homework information. Feel free to email your questions to me. I will endeavour to respond within 24 hours. Should you not receive a reply within 24 hours, try sending the message again, or ask me in person if I received your mail. *Important Note*: I do not have email access at home. Therefore you will not receive a reply to email sent late at night until the next day, or to messages sent during the weekend until Monday.

**Academic Integrity:**
For a university community of scholars, academic integrity is the heart of intellectual life—both in learning and in research. Undergraduates should read carefully the university's guidelines on *Student Behaviour* in Section 5.14, pages 32–34 of the *Undergraduate Calendar*, and not assume they understand what integrity and cheating are and are not. Academic integrity most certainly implies more at the university than it did in high school. The standards of integrity are those that prevail in professional life. Students must acknowledge and cite ideas they adopt from others (not just direct quotations), and understand the general standards and policies of academic integrity, as well as specific expectations in individual courses. When in doubt, ask! Students should also consult the pamphlet *Academic Integrity* published by the University Secretary, or contact that office for more information. It is expected that graduate students are conversant with the fundamentals of academic integrity; see pages 43–46 of the *Graduate Studies Academic Calendar*.