

**Cornell University**  
**Mathematics 171-Statistical Theory and Application in the Real World**

**Section:** 02

**Lecture:** MWF 9:00–9:55 a.m. in Malott Hall, room 406

**Lab:** F 1:25–2:15 p.m. in Stimson Hall, room 206

**Instructor:** Michael Kozdron

**Office:** 112 Malott Hall

**Phone:** 532-9410

**Email:** kozdron@math.cornell.edu

**Home Page:** <http://www.math.cornell.edu/~kozdron/Teaching/Cornell/171Spring04/>

**Office Hours:** M 1:30–2:30 p.m., Th 1:30–2:30 p.m., or by appointment

**Lab TA:** Jeff Lin

**Email:** h1295@cornell.edu

**Required Texts:**

- David S. Moore, *The Basic Practice of Statistics*, 3rd edition, Freeman 2003.
- *Math 171 Required Readings Course Packet*, Cornell Custom Publishing, 2004.

**Optional Materials:**

- Michael A. Fligner, William I. Notz, *Study Guide for Moore's The Basic Practice of Statistics*, 3rd edition, Freeman 2003.
- Paul Velleman, *Data Desk*, PC or Mac Software and Manual.
- Calculator.

**Course Description:**

4 credits. This introductory statistics course discusses techniques for analyzing data occurring in the real world and the mathematical and philosophical justification for these techniques. Topics include: population and sample distributions, central limit theorem, statistical theories of point estimation, confidence intervals, testing hypotheses, the linear model, and the least squares estimator. The course concludes with a discussion of tests and estimates for regression and analysis of variance (if time permits). The computer is used to demonstrate some aspects of the theory, such as sampling distributions and the central limit theorem. In the lab portion of the course, students learn and use computer-based methods for implementing the statistical methodology presented in the lectures. (No previous familiarity with computers is presumed.)

**Prerequisites:**

High school mathematics. No credit if taken after Econ 319, 320 or 321.

**General Policies:**

The policies listed on this page supplement the general Math 171 policies as detailed on the Math 171 website. It is expected that all students have carefully read this information.

**Attendance:**

Students should familiarize themselves with the section on Class Attendance, Meeting Times, and Examinations on pages 13–15 of *2003–2004 Courses of Study*: “Students are expected to be present throughout each term at all meetings of courses for which they are registered. The right to excuse a student from class rests at all times with the faculty member in charge of that class.”

### Grading Information:

Your final grade will be determined by your performance in the course, including laboratory work, class work, office visits, prelims, and the final exam.

Evaluation Type	Percentage of Final Grade
Lab Grade	15%
Class Grade	15%
Prelim Exams	40%
Final Exam	30%

### Computer Lab Information:

There is a computer laboratory associated with this class which meets weekly in the Mathematics Instructional Computing Lab (MICL) in room 206 of Stimson Hall. The statistical analysis software that is used in these labs is *Data Desk*, written by Paul Velleman, and which will provide the opportunity for hands-on manipulation of data, and to experiment with applying the concepts learned in class to actual real-world examples.

A laboratory assignment will be given each Friday in lab, and will be due the following Friday in lab. There should be sufficient time during the laboratory period to complete the computer analysis. However, the final write-up will likely have to be finished outside lab time. Students will work in pairs during the lab period, but the write-ups must be done individually. Therefore, while it is expected that graphs and figures be shared by lab partners, it is also expected that the required analysis be done individually. To do otherwise is a *violation of the Code of Academic Integrity*. The MICL will be open several hours each week so that students who did not finish their computer work in lab will have the opportunity to do so. Note, however, that the MICL assistants will not necessarily be able to help you with your statistics lab.

Your lab grade will be determined solely by the laboratory TA, and will be based on the weekly lab assignments and participation. It will count for 15% of your final course grade. The first laboratory will meet on Friday, January 30, 2004.

### Class Grade:

Your class grade will count for 15% of your final course grade. It will be determined by weekly homework assignments of problems from the textbook, class participation including attendance, and office visits.

### Textbook Homework:

As is true of the vast majority of university courses, it is not possible to cover all of the required material in lecture. As a result, each student must take an active role in his or her own education. Mathematics is not a spectator sport. It cannot be learned passively only by watching the instructor lecture. Instead it must be learned by doing. Consequently, 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 straightforward, 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 6–10 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 violation of Cornell's Code of Academic Integrity, to submit someone else's work as your own.*

**Class Participation:**

It is expected that every student participates in class. This is only possible with regular attendance. I understand that circumstances arise during the semester which periodically prohibit students from attending certain meetings, and for that reason I will not formally record attendance. However, there will be a problem if a student is *continually* skipping class. Refer to the university's stated policy on the first page.

**Office Visits:**

Each student is required to schedule an appointment with me once before Spring break and once after Spring break to discuss the course and your progress.

**Prelim Exams:**

There will be two major term tests, known at Cornell as Prelim Exams, that will be given during the semester. All students in all sections of Math 171 write common prelims, which are jointly written by the Math 171 instructors. All prelims will be closed-book, and graphing calculators will be allowed. Each prelim will be a comprehensive test of all of the material covered on the syllabus before that prelim, including lectures, labs, assigned readings, and homework.

**Final Exam:**

All students in Math 171 write a common final exam which is written in committee by all the instructors for this course. As with the prelims, the final exam will be closed book and graphing calculators will be allowed. The final exam will be comprehensive and cover all of the material listed on the syllabus.

**Exam Dates:**

The locations of the prelims are listed below, and the location of the final exam will be determined by the Registrar near the end of the term.

- Prelim 1: **Thursday, February 26, 2004, 7:30–9:00 p.m. (Thurston Hall 203)**
- Prelim 2: **Tuesday, April 13, 2004, 7:30–9:00 p.m. (Malott Hall 251)**
- Final Exam: **Monday, May 17, 2004, 9:00–11:30 a.m.**

It is possible that these dates may include Religious Holidays for some students. NYS Education Law section 224-A mandates that faculty make available an opportunity to make up any examination missed because of religious beliefs. In order to facilitate preparation of makeup exams, it is requested that students intending to be absent in order to observe a religious holiday notify the instructor by January 30, 2004.

**Web Site:**

I have written a web site for this section. The URL is

<http://www.math.cornell.edu/~kozdron/Teaching/Cornell/171Spring04/>.

I will be updating this site throughout the term and you will be able to download any handouts that you don't get in class. There is also a Math 171 course web page which contains information useful for all students taking this course. That URL is

<http://www.math.cornell.edu/~web171>.

**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/prelim 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.

**Extra Help:**

The Learning Strategies Center (LSC) offers free statistics tutoring on a walk-in basis during the academic year for students enrolled in Math 171. The Center for Learning and Teaching (CLT) Instructional Support lab, located in room 421 of the Computing & Communications Center, offers statistical support 2 evenings and 2 afternoons per week. The lab is equipped with PC and Macintosh computers loaded with the appropriate statistical software. For further information, please contact Patty Alessi, Statistics Lab Coordinator (212 Malott Hall; 255-8637; [pa31@cornell.edu](mailto:pa31@cornell.edu)).

The Mathematics Department also runs the Math Support Center (MSC) located in 256 Malott Hall which provides free tutoring throughout the week. To make an individual tutoring appointment simply sign up on the schedule posted outside the MSC.

**Academic Integrity:**

For a university community of scholars, academic integrity is the heart of intellectual life—both in learning and in research, to paraphrase the section on Academic Integrity in Arts and Sciences on page 424 of *2003–2004 Courses of Study*. Students should read carefully Cornell’s Code of Academic Integrity 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!

Therefore, students are expected to abide by Cornell University policies, including the campus Code of Conduct and the Code of Academic Integrity, as described in the *Policy Notebook*, and should pay particular attention to §I.C of the Code of Academic Integrity.