

Home	E-mail	Homework
Dr. Quintanilla	Math Department	University of North Texas

Math 4610.001: Spring 2015

Meets: MWF 10:00-10:50 in Matthews Hall, Room 109.

Instructor: [Professor John Quintanilla](#)

Main Office: GAB, Room 418-D

Office Phone: x4043

Secondary Office: Wooten Hall, Room 335

Secondary Office Phone: x4235

E-mail: jquintanilla@unt.edu

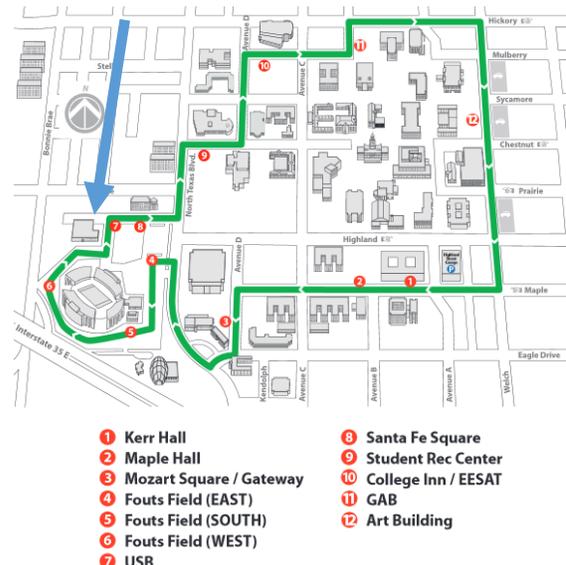
Web page: <http://www.math.unt.edu/~johnq/Courses/2015spring/4610/>

Office Hours:

- **Wooten Hall office:** Wednesdays and Fridays, 8-9:30
- **Main GAB office:** Tuesdays 10-12, Thursdays 10-12, or by appointment. I'm fairly easy to find, and you're welcome to drop by outside of office hours without an appointment. However, there will be occasions when I'll be busy, and I may ask you to wait or come back later.

Required Text: *Probability*, by J. Pitman.

Strongly Recommended: Lecture notes for the semester are available for approximately \$18. The Eagle Images Print Center is in room 124 of the University Service Building (USB), which located near the Fouts Field Parking Lot. This is not a convenient location, but offering them for sale elsewhere would increase the price of the lecture notes significantly. The [Mean Green](#) (stop 7 on the map) and [Campus Cruiser](#) shuttles both stop at USB. You should enter through the north door (that is, the door that isn't facing Fouts Field) to easily get to the Print Center.



Course Description: Combinatorial analysis, probability, conditional probability, independence, random variables, expectation, generating functions and limit theorems.

Prerequisite: Math 2730.

Note: Math 3680 will become a prerequisite for Math 4610 in Fall 2015, but it's not a prerequisite for this semester. That said, I realize that a large majority of students enrolled in Math 4610 have already taken Math 3680. For this reason, I will not spend much time in class motivating introductory concepts of probability found in Math 3680 and/or the middle-school and high-school TEKS. Instead, I'll be assuming these introductory concepts as background knowledge which we will review through problem-solving during the first three weeks of the semester.

I have made certain videos from my Math 3680 class available on Blackboard for anyone who'd like a more thorough discussion or review of these concepts. The notes for these videos are part of the lecture notes available at the Eagle Images Print Center.

Actuarial Exams: Math 4610 should provide good preparation from the 1/P actuarial exam. More about the actuarial profession can be found at <http://www.beanactuary.org>, including extensive [preparation for the 1/P exam](#) that can also serve as review material for this course.

Course Topics

The following chapters and sections of the textbook will be covered according to the projected schedule below. Dates may change as events warrant.

- Chapter 1: Introduction
 - 1.1 Equally Likely Outcomes
 - 1.2 Interpretations
 - 1.3 Distributions
 - 1.4 Conditional Probability and Independence
 - 1.5 Bayes' Rule
 - 1.6 Sequences of Events
- Chapter 2: Repeated Trials and Sampling
 - 2.1 The Binomial Distribution
 - 2.2 Normal Approximation: Method
 - 2.4 Poisson Approximation
 - 2.5 Random Sampling
- Chapter 3: Random Variables
 - 3.1 Introduction
 - 3.2 Expectation
 - 3.3 Standard Deviation and Normal Approximation
 - 3.4 Discrete Distributions
 - 3.5 The Poisson Distribution
- Chapter 4: Continuous Distributions

- 4.1 Probability Densities
- 4.2 Exponential and Gamma Distributions
- 4.4 Change of Variable
- 4.5 Cumulative Distribution Functions
- 4.6 Order Statistics
- Chapter 5: Continuous Joint Distributions
 - 5.1 Uniform Distributions
 - 5.2 Densities
 - 5.3 Independent Normal Variables
 - 5.4 Operations
- Chapter 6: Dependence
 - 6.1 Conditional Distributions: Discrete Case
 - 6.2 Conditional Expectation: Discrete Case
 - 6.3 Conditioning: Density Case
 - 6.4 Covariance and Correlation
 - 6.5 Bivariate Normal

	January 21: Review of Chapters 1-2	January 23: Review of Chapters 1-2
January 26: Review of Chapters 1-2	January 28: Review of Chapters 1-2	January 30: Review of Chapters 1-2
February 2: Review of Chapters 1-2	February 4: Review of Chapters 1-2	February 6: Review of Chapters 1-2
February 9: 2.4	February 11: 3.1	February 13: 3.2
February 16: 3.2, 3.3	February 18: 3.3	February 20: EXAM #1 Sage Hall Testing Center
February 23: 3.3	February 25: 3.4	February 27: 3.4, 3.5
March 2: 3.5	March 4: 4.1	March 6: 4.1, 4.2
March 9: 4.2	March 11: 4.2	March 13: 4.4
SPRING BREAK		
March 23: 4.5	March 25: 4.5, 4.6	March 27: EXAM #2 Sage Hall Testing Center
March 30: 4.6	April 1: Moment-generating function	April 3: Moment-generating function
April 6: 5.1, 5.2	April 8: 5.2	April 10: 5.3
April 13:	April 15:	April 17:

5.4	5.4	6.1
April 20: 6.2	April 22: 6.3	April 24: EXAM #3 Sage Hall Testing Center
April 27: 6.3	April 29: 6.4	May 1: 6.4
May 4: 6.4, 6.5	May 6: 6.5	May 8: READING DAY
		May 15: FINAL, 8-10 am

Student Responsibilities

- Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student's conduct violated the [Code of Student Conduct](#). The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc.
- You should read over this syllabus carefully, as I will hold you responsible for the information herein.
- Students will be expected to read the chapters carefully, including the examples in the book.
- Students will be responsible for obtaining any and all handouts. If you are not in class when handouts are given, it is **your** responsibility to obtain copies.
- **You should begin working now.** Frequent practice is crucial to the successful completion of a mathematics course. Cramming at the last minute will certainly lead to failure.
- **WARNING:** If you are in academic trouble, or are in danger of losing your financial support, or if your parent or guardian is expecting a certain grade at the end of the semester... start working today. I will refuse to listen to any pleas at the end of the semester. You will receive precisely the grade that you *earn*.

Grading Policies

The following schedule is tentative and is subject to capricious changes in case of extracurricular events deemed sufficiently important to the upper administration.

Final Exam	Friday, May 15 8-10 am	24%
Exam 1	c. Week 5	19%
Exam 2	c. Week 9	19%
Exam 3	c. Week 14	19%
Homework		19%

A	90% and above
B	80% and below 90%
C	70% and below 80%
D	60% and below 70%
F	below 60%

Cooperation is encouraged in doing the homework assignments. However, **cheating will not be tolerated on the exams**. If you are caught cheating, you will be subject to any penalty the instructor deems appropriate, **up to and including an automatic F for the course**.

Attendance is not required for this class. However, you will be responsible for everything that I cover in class, even if you are absent. It is my experience that students who skip class frequently make poorer grades than students who attend class regularly. You should consider this if you don't think you'll be able to wake up in time for class consistently.

The grade of "I" is designed for students who are unable to complete work in a course but who are currently passing the course. The guidelines are clearly spelled out in the *Student Handbook*. Before you ask, you should read these requirements.

Exam Policies

- Since I don't want students to feel rushed to complete the exams in only 50 minutes, **exams will be held in the Sage Hall Testing Center**, which is in suite C330 on the third floor of Sage Hall. I have reserved a room in this testing center for 9-12 on exam dates. You can arrive at any time between 9 and 10, and you will have 1 hour and 50 minutes to complete the exam. I will be happy to make alternate arrangements for anyone whose schedule prevents them from taking the exam during this time frame.
- I expect to give exams during the weeks above, but these dates are subject to change.
- After exams are returned in class, you have 48 hours to appeal your grade. I will not listen to any appeals after this 48-hour period.
- I will not drop the lowest exam score; all will count toward the final grade.
- No make up exams will be given. For those students who miss an exam due to an **Authorized Absence** (see the *Student Handbook*), the final grade will be computed based only on those exams taken, together with homework/quiz scores and the final exam. Such students will be required to provide *official written* verification of such an absence.
- Students missing an exam for unauthorized reasons will receive 0 (zero) points on the exam.

- The Final Examination will be comprehensive in the sense that problems may come from any of the sections that will be covered during the semester.
 - The grade of A signifies *consistent* excellence over the course of the semester. In particular, an A on the final is not equivalent to an A for the course.
 - I reserve the right to test and quiz you on problems which are generalizations of material covered in the class and/or in the text. In short, the problems may not look exactly like the ones in the book.
 - Everything that I say in class is fair game for exam material. You will be responsible for everything unless I advise you to the contrary.
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Homework Policies

- Homework will be assigned every Friday and will be due the following Friday.
 - I expect the assignments that you turn in to be written up carefully and neatly, with the answers clearly marked. You must show all of your work. **Messy homework will not be accepted.**
 - Entire homework assignments will **not** be graded. Instead, only 3-5 representative problems will be graded per assignment. As a consequence, it will be possible to not do the entire assignment and still receive a perfect score on that particular assignment. **Deliberately leaving homework uncompleted is highly unrecommended**, however, as the law of averages will surely catch up with you as the semester progresses.
 - When computing grades, I will drop the **two** lowest homework grades before computing the homework average. Therefore, in principle, you could get a 100% homework score and also not turn in two assignments during the semester. I have this policy in case you get sick, a family emergency arises, etc., during the semester. You will still be responsible for the material in such assignments during the examinations.
 - Because of this policy, I will **not** give extensions on homework assignments, nor will I accept late assignments.
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Final Note

In compliance with the Americans with Disabilities Act, I mention the following: It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office.

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