

Syllabus of MATH1780.002 (Probability Models), Spring 2014:

<p>INSTRUCTOR: KOSHAL DAHAL</p> <p>Personal Site: www.math.unt.edu/~koshal</p> <hr/> <p>Office: GAB 441 (Opposite to MathLab)</p> <p>Office Hours: T/R: 12:00 - 2:00pm</p> <p>Email Contact: Koshaldahal@my.unt.edu</p> <p style="text-align: center;">For emergencies, not in lieu of attendance. Allow one (1) business day for reply. Include course name & your full name in the subject header. Email without this information may not get opened! Students should use office hours for help with class materials.</p>	<p>COURSE: MATH 1780.002, Probability Models</p> <p>Text Book: Intro. To Probability and its Application, By Scheaffer & Young, 3rd edition.</p> <p>MATH LAB: GAB 440 (Opposite to my office) Web site: www.math.unt.edu/mathlab</p> <p>Go to Website for hours of operation. The MathLab provides help for HWs. No appointment necessary, just walk in for help.</p> <p style="text-align: center;">This class will NOT use blackboard!</p>
<p>CLASS MEETS: M/W @ 2:00pm - 3:20pm @ LIFE A106</p> <p>FINAL EXAM DATE & TIME: Monday May 5, @ 1:30pm - 3:30pm</p>	<p style="text-align: center;"><u>DISRUPTIVE BEHAVIOR:</u></p> <p>On any day, if you disrupt the class you will be asked to <u>leave the classroom and marked absent</u>. You may also be reported for further disciplinary actions. Disruptive behaviors include --but are not limited to -- talking, making inappropriate jokes, using phones in class, leaving class to answer phone, or performing other tasks that are not related to class work!</p>
<p><u>COURSE DESCRIPTION AND PREREQUISITE:</u></p> <p>(Probability Models, 3 hours): Probability theory, discrete and continuous random variables, Markov chains, limit theorems, stochastic processes, and models for phenomena with statistical regularity. Prerequisite(s): MATH 1710.</p>	
<p><u>ATTENDANCE AND GRADING POLICY:</u></p> <p style="margin-left: 40px;">Average of Homework + Quiz : 15% Three Tests : 60% (20% each) Final Exam : 25%</p> <p>Attendance is expected of all students for a good performance in this course and it is strongly recommended. Students are responsible for all information given in the class, regardless of his/her attendance. NO late homework accepted for any reason! No make-up HWs & Tests will be given. Your final course grade is determined by the criteria explicitly stated on this syllabus. Grades are not wages; they are not intended to reflect how hard you've worked or the goodness of your intentions. Grades reflect your proficiency of the course content as you have demonstrated them on the evaluation criteria. Please take special note that "going to graduate in this semester," "extra credit," "hiring tutors," "needing it for scholarship," "I didn't know what was required," "tried really hard," etc. are NOT any part of the grade assignment process! You will receive precisely the grade that you earn!!</p>	

HOMEWORKS:

HWs will be assigned at my personal web site at www.math.unt.edu/~koshal , after each class has been taught and be strictly due before the next class starts. The HW must be placed on my desk in class (or slide under the door at my office) by the beginning of the class. Please DO consider seriously these instructions on how to turn-in your HWs to be graded: Write the HWs # clearly, put the final answer of each problem in the box, arrange the answer sheet in order, STAPLE them and write your NAME legibly as last/first (according to the university roster) at the top of the cover page. Messy HWs will not be graded. I will drop **FOUR** (4) lowest Handed-in HWs before computing the HW average.

TESTS & GRADING POLICY:

TESTS: Three (3) exams and a Final exam are planned for this semester. Count your points on each Test to be sure that the totals are correct. Keep a record of all your scores. If you think that your work has been graded incorrectly, ask for a re-grade *immediately* (by 5 pm on exam received day) after receiving the exam back. Your entire exam will then be re-graded, but be advised that you may lose points or gain points on any problem while re-grading, including but not limited to the problem you ask about.

Each exam is evaluated at 15% of the course grade.

NO MAKE-UP EXAMS WILL BE GIVEN! Under genuine reason (needs your Instructor's verification!) and in the event of a schedule conflict with a university function, dental/physician's appointment, wedding, formal, or whatever, the **student must take the test early.**

FINAL:

The Final exam is comprehensive and is mandatory! You may replace your lowest test score with the final exam score if the latter is higher. If you miss any test, you may use the final exam score for this test. If you receive a zero for cheating on an exam, the final exam score will NOT replace that zero.

The Final exam score count as 25% of the course grade. NO Cell phone is allowed during any exams, including the Final. You may use TI 83/84 plus calculator but not higher in all exams.

The Final Exam date and time: Monday, May 5, @ 1:30pm-3:30pm, @ LIFE A106 (regular classroom)

GRADE ASSIGNMENT:

A: [90%, ∞); B: [80%, 90%); C: [70%, 80%);
D: [60%, 70%); F: [0%, 60%). **Note: 59.9% is an F.**

Students may access their **Final Semester grades online at:** www.my.unt.edu

ACADEMIC DISHONESTY:

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. Cooperation is encouraged in doing the homework assignments but not allowed on the Tests. 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. Furthermore, a letter will be sent to the appropriate dean. Refer to the following university site for the official policy with regards to academic dishonesty. The website is: <http://vpaa.unt.edu/academic-integrity.htm>

PROGRESS REPORT:

Students needing progress reports completed/signed for athletics, scholarships and/or any other organization must attend office hours to get them completed.

ACCOMODATION FOR STUDENTS WITH DISABILITIES:

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda> . You may also contact them by phone at 940.565.4323.

NOTES: - *(I reserve the right to change this syllabus as necessary throughout the semester)*

This syllabus is subject to change as the instructor deems necessary! Any/all changes will be announced during regular class time and you are responsible for being aware of any changes I announce in class (I will hold you responsible to read this syllabus carefully). It is the responsibility of the student to attend each scheduled class to be informed of these changes. Students are responsible for meeting all university deadlines (registration, fee payment, prerequisite verification, drops deadlines, etc.). See the printed Schedule of Classes and/or University Catalog for policies and dates.

Please, visit <http://registrar.unt.edu/registration/spring-registration-guide> for details.

DROP POLICY:

If the student is unable to complete this course, it is his/her responsibility to formally withdraw from the course. The student may do so through the Registrar's Office after obtaining the necessary signatures of the instructor. The last day to drop a class with an automatic "W" is **Friday, Feb. 21**. The last day to drop a class with the consent of the Instructor, with "W" or "WF" is **Tuesday, March 25**. "WF" is averaged into your GPA as an "F." If the student does not properly withdraw from the course but stops attending, s/he will receive a performance grade, usually an F. Beginning, **Monday, April 7**, student who qualifies may request a grade of I, the incomplete.

CLASSROOM ETIQUETTE:

Appropriate behavior is expected of all students taking this course. Arrive to class promptly and do not leave until the scheduled ending time of the class. If you must arrive late or leave early, please do so as discreetly as possible and take a seat near an exit. **I know you have a cool phone but no one likes to see or hear your cool phone in class! So please silent your phones** (iPhones/cell phones)! Absolutely NO Texting! If I see you playing with any electronic gadgets, I will call you and ask you to leave the class room immediately. **Turn off all non-medical electronic devices such as Ipad, laptops, kindles etc... & take-off the headphones. Do not read newspaper or work on any unrelated assignments during class.** I prefer that you NOT eat during class.

EXAM ETIQUETTE:

- Place all papers, textbook, notes, etc. in a backpack or a book bag and close it securely.
- **Turn off** all electronic devices (unless medically necessary), ringing during class will count against you.
- Handling of ANY such electronic devices during an exam will be construed as cheating (receiving unauthorized aid) and may result in a zero for that exam. Do not wear HATS or CAPS during exams.
- Do not share any materials during an exam. This includes, but is not limited to pencils, erasers, etc.
- Have only the exam, pencil, and eraser out during an exam. Plenty of work-space is provided on the actual exam. You will not be permitted to have any unauthorized scratch papers during an exam.

Course Topics (MATH 1780, Probability Models)

The following chapters and sections (followed by page #) of the textbook will be covered according to the projected schedule below. Dates may change as events warrant.

2. Foundations of Probability, 8

- 2.2. Sample Space and Events, 13
- 2.3. Definition of Probability, 22
- 2.4. Counting Rules Useful in Probability, 31

3. Conditional Probability and Independence, 57

- 3.1. Conditional Probability, 57
- 3.2. Independence, 69
- 3.3. Theorem of Total Probability and Baye's Rule, 78
- 3.4. Odds, Odds Ratios and Relative Risk, 83

4. Discrete Probability Distributions, 93

- 4.1. Random Variables and Their Probability Distributions, 93
- 4.2. Expected Values of Random Variables, 104
- 4.3. The Bernoulli Distribution, 121
- 4.4. The Binomial Distribution, 122
- 4.5. The Geometric Distribution, 137
- 4.6. The Negative Binomial Distribution, 144
- 4.7. The Poisson Distribution, 152
- 4.8. The Hypergeometric Distribution, 162
- 4.9. The Moment-Generating Function, 169
- 4.10. The Probability-Generating Function, 172
- 4.11. Markov Chains, 176

5. Continuous Probability Distributions, 192

- 5.1. Continuous Random Variables and Their Probability Distributions, 192
- 5.2. Expected Values of Continuous Random Variables, 201
- 5.3. The Uniform Distribution, 210
- 5.4. The Exponential Distribution, 216
- 5.5. The Gamma Distribution, 226
- 5.6. The Normal Distribution, 233
- 5.10. Moment-Generating Functions for Continuous Random Variables, 272

7. Functions of Random Variables, 351

- 7.2. Functions of Discrete Random Variables, 352
- 7.3. Method of Distribution Functions, 354
- 7.4. Method of Transformations in One Dimension, 363

8. Some Approximations to Probability Distributions: Limit Theorems, 395

- 8.2. Convergence in Probability, 395
- 8.3. Convergence in Distribution, 399
- 8.4. The Central Limit theorem, 406

9.1. The Poisson Process, 422 (Optional)

Student Evaluation of Teaching Effectiveness (SETE):

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. You must participate in this online short survey at the end of the semester. I consider the SETE to be an important part of your participation in this class.

For the Spring 2014 semester, the SETE will be open toward the end of the semester.

- **Keep a positive attitude about your ability to succeed and work diligently towards that goal!**
- **MATHEMATICS IS NOT A SPECTATOR SPORT -- YOU MUST PRACTICE TO LEARN!!**

• **Wishing You a Great Semester Ahead!!!**

This page is left intentionally BLANK, please insert your schedule here for Spring 2014: