



**MTH 341 Probability**  
**Semester 091 (Fall 2009) Course Syllabus**

**Instructor:** Karen E. Donnelly. **Office:** Core 257  
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**Office Hours**

Monday 2:00 p.m. -- 3:00 p.m.	Thursday 12:00 p.m. – 2:00 p.m.
Tuesday 12:00 p.m. – 2:00 p.m.	Contact for appointment during other times.
Wednesday 2:00 p.m. -- 3:00 p.m.	

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**Probability Course Web Page URL:** [www.saintjoe.edu/~karend/m341](http://www.saintjoe.edu/~karend/m341)

**Text:** Saeed Gahahramani, Fundamentals of Probability with Stochastic Processes, 3<sup>rd</sup> Edition. Prentice Hall, © 2005. ISBN: 0-13-145340-8

**Course Objectives:**

1. To master basic concepts in probability theory, including discrete and continuous random variables and their distributions, density functions, expectations, mean, and variance.
2. To investigate important specific discrete and continuous distributions.
3. To understand implications of the Central Limit Theorem.
4. To continue to develop mathematical problem-solving skills and to apply these skills to the solving of application problems in probability.
5. To continue to develop the ability to communicate mathematics effectively.

**Course Outline:**

1. Introductory Concepts in Set Theory and Axioms of Probability. (Chapter 1)
2. Combinatorial Methods (Counting methods, permutations, combinations). (Chapter 2)
3. Conditional Probability and Independence. (Chapter 3)
4. Discrete Random Variables (Probability densities, expectation, variance, (Chapter 4)
5. Special Discrete Distributions (Chapter 5)
6. Continuous Random Variables (Density and distribution, expectation, variance). (Chapter 6)
7. Special Continuous Distributions.(Chapter 7)
8. Joint distributions and expectations, covariance, correlation. (Chapters 8 and 9)
9. Sums of Independent Random Variables and Limit Theorems (Chebyshev's Inequality, Laws of Large Numbers, Central Limit Theorem). (Chapters 10 and 11)

**Tentative Exam Dates:**

- Exam # 1: Wed. September 30th
- Exam # 2: Wed. Oct. 24th
- Exam # 3: Fri. Dec. 4th
- Final Exam (Comprehensive): Tues. Dec 15th 3:00 p.m.

**Grade Distribution:**

Assignments, Quizzes:	30%	Final Exam:	20%
Three Exams:	45%	Attendance and Participation:	05%

**Grading Scale:**

93%-100%	A	90%-92%	A-		
87%-89%	B+	83%-86%	B	80%-82%	B-
77%-79%	C +	73%-76%	C	70%-72%	C-
67%-69%	D+	60%-66%	D		
59% or Below	F				

## **Expectations and Requirements:**

*Special Note:* If you are a student with a disability, please meet with me immediately to discuss the accommodations you will need during class activity, examinations, and out of class assignments in order to participate fully and demonstrate your abilities.

### **1. In the classroom:**

a) No electronic devices such as Ipods, laptops, or cell phones may be used during class -- They must be turned off. If this is violated they will be placed on the professor desks at front of class until end. For repeat violations, the student will be asked to leave the classroom.

b) No hats may be worn during class.

c) Be seated and prepared with all materials out and ready at the beginning of class. Make sure that you have reviewed previous class notes and completed any assigned reading prior to class. You must bring your text book and calculator to all classes. The text book should be out ready to reference any pages as asked by the professor during class. To receive the maximum grade on attendance and participation, the student must read assignments **prior** to class, be prepared to ask and respond to questions, and be an actively engaged participant in class.

d) Take good notes and **review notes** on a regular basis.

e) **Attendance is required.** If you must miss class due to illness or other valid excuse (e.g. athletic event) please send me email or telephone with an explanation prior to the class date. Please do not come to class if you have flu-like symptoms. However, you should bring documentation of such (e.g. from health center) when you return to class.

**3. Academic Honesty:** Plagiarism or other forms of academic dishonesty on any assignments, tests, or quizzes will not be tolerated. If the instructor finds that a student has engaged in dishonesty, the student may be referred to the Dean of Academic Affairs for appropriate action.

**4. Quizzes and Exams:** Students are expected to be present for all exams. **No exams or quizzes may be made up** unless the student has contacted the instructor and received permission **prior** to the date of the original exam or quiz. This includes students participating in athletics who must arrange to take the quiz or exam **on or before the scheduled date**.

**5. Problem Assignments:** Assignments, unless otherwise specified by the instructor, are to be **completed individually**. While students are encouraged to **consult** each other for ideas for assignments, the solutions should be completed individually. Any help one student gives another should be instructional help only. If the instructor feels that a student has not completed an assignment individually, the instructor may question the student on that assignment. The student should be able to explain how he/she worked the problem and should be able to work similar problems. **Late assignments will not be accepted without permission.**

### **6. Homework Guidelines:**

- Write out complete answers **NEATLY and CLEARLY**.
- Number each exercise to the left --Problems should proceed in order from top to bottom.
- You must show your work! **Correct mathematical notation** must be used. Partial credit is given when work is shown even if answer is incorrect. However, correct answers without any work shown will in general be given no credit.
- If the problem is a computation leading to a final answer, **box the answer**.
- Use pencil and eraser -- do not scratch out work.
- **Staple** your pages together before submitting.
- Start homework early and see me for help with problems you don't know how to work! *It is inappropriate to ask how to do a problem in class the day it is due!!!!* My office is Core 257-- See my schedule for office hours or call or send email for an appointment. I am always delighted to help.

### **7. Getting Help:**

Students who do not understand a concept should do the following:

- a) Ask questions in class. (More than likely other students do not understand as well.)
- b) Seek individual help from the instructor. I am more than willing to give you the extra help you may need. Come in during office hours or make an appointment. Tutoring (free) can also be arranged either through me or through counseling services.
- c) Share with me any concerns you may have or any suggestions you have for the class structure that will help you learn more effectively.

*The above content and requirements are tentative and subject to change according to time constraints and other factors as determined by the instructor.*

<b>Set Number</b>	<b>Written Problem Assignments Semester 091 (<i>Tentative --Subject to Change</i>)</b>
<b>1</b>	Section 1.2: 2, 5, 6, 7, 9, 10 -- draw Venn Diagrams for these also , 11
<b>2</b>	Section 1.4: 1, 2, 3, 4, 5, 6, 8, 12, 16, 18, 22, 26
<b>3</b>	Section 1.7 2, 4, 5, 10 and Review Exercise 10, page 36.
<b>4</b>	Section 2.2 2, 4, 5, 6, 7, 8, 10, 15, 18
<b>5</b>	Section 2.3 1, 2, 4, 6, 9, 10, 12, 18, 21
<b>6</b>	Section 2.4 1, 2, 3, 4, 5, 6, 7, 15, 16, 18, 22
<b>7</b>	Section 3.1 2, 4, 7, 8, 9, 16
<b>8</b>	Section 3.2 2, 4, 6, 8
<b>9</b>	Section 3.3 1, 2, 3, 4, 6
<b>10</b>	Section 3.4 1, 2, 3, 6, 8
<b>11</b>	Section 3.5 1, 3, 4, 6, 8, 12, 15, 22
<b>12</b>	Section 4.2 1, 2, 5, 10, 11
<b>13</b>	Section 4.3 1, 2, 4, 7, 8
<b>14</b>	Section 4.4 2, 3, 4, 5, 6
<b>15</b>	Section 4.5 1, 2, 4, 6, 7, 8; Section 4.6 2
<b>16</b>	Section 5.1: 1, 2, 6, 9, 10, 13, 18
<b>17</b>	Section 5.2: 1, 2, 4, 5, 6, 11, 12, 14, 16
<b>18</b>	Section 5.3: 1, 3, 4, 5, 8, 13, 16
<b>19</b>	Section 6.1: 1, 2, 5, 8
<b>20</b>	Section 6.2: 1, 2, 4, 5
<b>21</b>	Section 6.3: 1, 2, 4, 8, 9
<b>22</b>	Section 7.1: 1, 2, 4, 5, 10
<b>23</b>	Section 7.2: 1, 2, 6, 8, 9, 10
<b>24</b>	Section 7.3 1, 2, 3, 4, 5, 7
<b>25</b>	Section 7.4 3, 5, 6
<b>26</b>	Section 8.1: 1, 2, 3, 6, 9;
<b>27</b>	Section 8.2: 1, 2, 9, 11
<b>28</b>	Section 10.1: 4, 5, 12
<b>29</b>	Section 10.2: 2, 3, 18 Section 10.3 1, 2
<b>30</b>	Section 11.5: 1, 2, 3, 6