Math 122 Syllabus – Fall 2015

**Section Number** 27042, **Class Time:** M W F 1:00 – 2:05 PM, Kenna Hall 218

**Instructor:** Nicolette Meshkat  
**Office:** O’Connor 4  
**Office Hours:** Monday 2:15 – 4:15 pm, Tuesday 12:30 – 2:30 pm, Wednesday 10:30 – 11:30 am and by appointment

**Email address:** nmeshkat@scu.edu  
**Course website:** http://math.scu.edu/~nmeshkat/

**Goals and Objectives:**
1. Learn, understand, and communicate definitions, examples, fundamental theorems, and applications relevant to the study of probability.
2. Analyze, solve, and communicate solutions to problems in probability.

**Text:** Mathematical Statistics with Applications by Wackerly, Mendenhall, and Scheaffer

**Homework** will be assigned weekly on Wednesday and will be due in class the following Wednesday. Late homework is accepted up to one week past the due date, if due to illness or other unforeseen circumstances. At most one late homework can be turned in for credit.

**Calculators:** You can use a calculator for homework and exams.

**Exams:** We will have two exams and one comprehensive final exam. See the attached schedule for dates. **Department policy does not allow make-up exams, or the rescheduling of finals for any reason whatsoever, including illness.** If you are unable to take an exam because of illness or emergency, you must contact me before the time of the exam to let me know, and you must provide proof that you were unable to take it. This can be a doctor’s note, or an email from Student Life, telling me you had an emergency. Without this, a missed test receives a grade of 0. By enrolling in this class, you acknowledge that the exams are on the dates given in the schedule of lectures below, and agree that you will be in class on those days, barring illness or disaster.

**Grading Policy:** 25% **Midterm 1** + 25% **Midterm 2** + 30% **Final** + 15% **Homework** + 5% **Participation**

**Academic Integrity:** The penalty for cheating is a failing grade for the course, and the University may take further disciplinary action. All of the work that you turn in should be your own, and not that of a classmate or copied from another source. Please see http://www.scu.edu/academics/bulletins/undergraduate/Academic-Integrity.cfm for further information.

**Disability accommodation policy:** If you have a documented disability for which accommodations may be required in this class, please contact Disabilities Resources, Benson 216, www.scu.edu/disabilities, as soon as possible to discuss your needs and register for accommodations with the University. If you have already arranged accommodations through Disabilities Resources, please initiate a conversation with me about your accommodations during my office hours within the first two weeks of class. Students who are pregnant and parenting may also be eligible for accommodations. Accommodations will only be
provided after I have verification of your accommodations as approved by Disabilities Resources, and with sufficient lead time for me to arrange testing or other accommodations. For more information you may contact Disabilities Resources at 408-554-4109.

Pathways: This course is associated with the Digital Age and Paradigm Shifts and the Nature of Human Knowing Pathway. You can find information about Pathways on the Core Curriculum website http://scu.edu/core, including specific Pathways, all courses associated with them, and the Reflection Essay prompt and rubric used to evaluate the final essay you will submit. If you declare this Pathway, you may use a representative piece of work from this course as one of the Pathway materials you will upload via eCampus during your junior or senior year. Therefore, we recommend that you keep electronic copies of your work.

**Tentative Class Schedule**

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<tr>
<th>Date</th>
<th>Section</th>
<th>Topics</th>
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<tbody>
<tr>
<td>Sept. 21</td>
<td>2.1, 2.2, 2.3</td>
<td>Introduction, Probability and Inference, A Review of Set Notation</td>
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<tr>
<td>Sept. 23</td>
<td>2.4, 2.5</td>
<td>A Probabilistic Model for an Experiment, Calculating Probability</td>
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<td>Sept. 25</td>
<td>2.6</td>
<td>Tools for Counting Sample Points</td>
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<tr>
<td>Sept. 28</td>
<td>2.7, 2.8</td>
<td>Conditional Probability and Independence, Two Laws of Probability</td>
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<td>Sept. 30</td>
<td>2.9, 2.10</td>
<td>Calculating Probability, The Law of Total Probability and Bayes Rule</td>
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<td>Oct. 2</td>
<td>2.11, 2.12</td>
<td>Numerical Events and Random Variables, Random Sampling</td>
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<tr>
<td>Oct. 5</td>
<td>3.1, 3.2, 3.3</td>
<td>Basic Definition, Discrete Probability Distribution, Expected Value</td>
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<td>Oct. 7</td>
<td>3.4</td>
<td>The Binomial Probability Distribution</td>
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<td>Oct. 9</td>
<td>3.5, 3.8</td>
<td>The Geometric Probability Distribution, The Poisson Distribution</td>
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<td>Oct. 12</td>
<td>Review</td>
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<td>Oct. 14</td>
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<td>Test #1</td>
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<tr>
<td>Oct. 16</td>
<td>3.9, 3.11</td>
<td>Moments and Moment-Generating Functions, Tchebysheff’s Thm</td>
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<td>Oct. 19</td>
<td>4.1, 4.2, 4.3</td>
<td>Introduction, Continuous Probability Distribution, Expected Values</td>
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<td>Oct. 21</td>
<td>4.4, 4.5</td>
<td>The Uniform Probability Distribution, The Normal Distribution</td>
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<td>Oct. 23</td>
<td>4.6</td>
<td>The Gamma Probability Distribution</td>
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<td>Oct. 26</td>
<td>4.8, 4.9, 4.10</td>
<td>Some Comments, Other Expected Values, Tchebysheff’s Theorem</td>
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<td>Oct. 28</td>
<td>5.1, 5.2</td>
<td>Introduction, Bivariate and Multivariate Probability Distributions</td>
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<td>Oct. 30</td>
<td>5.3</td>
<td>Marginal and Conditional Probability Distributions</td>
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<td>Nov. 2</td>
<td>Review</td>
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<td>Nov. 4</td>
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<td>Test #2</td>
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<td>Nov. 6</td>
<td>5.4</td>
<td>Independent Random Variables</td>
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<td>Nov. 9</td>
<td>5.5</td>
<td>The Expected Value of a Function of Random Variables</td>
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<td>Nov. 11</td>
<td>5.6, 5.7</td>
<td>Special Theorems, The Covariance of Two Random Variables</td>
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<td>Nov. 13</td>
<td>5.8</td>
<td>The Expected Value &amp; Variance of Linear Functions of Random Vars</td>
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<td>Nov. 16</td>
<td>6.1, 6.2, 6.3</td>
<td>Intro, Functions of Random Vars, Method of Distribution Functions</td>
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<td>Nov. 18</td>
<td>6.5</td>
<td>The Method of Moment-Generating Functions</td>
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<td>Nov. 20</td>
<td>7.1, 7.2</td>
<td>Intro, Sampling Distributions Related to the Normal Distribution</td>
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<td>Nov. 30</td>
<td>7.3, 7.5</td>
<td>The Central Limit Theorem, Normal Approximation to Binomial Dist</td>
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<td>Dec. 2</td>
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<td>Course Review</td>
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<td>Dec. 4</td>
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<td>Course Review</td>
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<td>Dec. 9</td>
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<td>Final Exam, 1:30 – 4:30 pm</td>
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