

CS 3341.HON – Probability and Statistics in Computer Science and Software Engineering - Honors

Course Information

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| <i>Course Number/Section</i> | CS3341.HON |
| <i>Course Title</i> | Probability and Statistics in Computer Science and Software Engineering - Honors |
| <i>Term</i> | Fall 2017 |
| <i>Days & Times</i> | MW 2:30 – 3:45pm |
| <i>Location</i> | AD 2.232 |

Professor Contact Information

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| <i>Instructor</i> | Dr Bill Semper |
| <i>E-Mail</i> | WJS130130@utdallas.edu |
| <i>Office hours</i> | MW, 1:00 – 2:00pm, ECSS 4.602 |
| <i>Phone</i> | 972-883-4139 |
| <i>Website</i> | www.utdallas.edu/~wjs130130/ |

Course Pre-requisites, Co-requisites, and/or Other Restrictions:

Prerequisites: (MATH 1326 or MATH 2414 or MATH 2419), and (CE 2305 or CS 2305 or TE 2305 with a grade of C or better). (Same as SE 3341 and STAT 3341) (3-0) S.

Course Description

Axiomatic probability theory, independence, conditional probability. Discrete and continuous random variables, special distributions of importance to CS/SE, and expectation. Simulation of random variables and Monte Carlo methods. Central limit theorem. Basic statistical inference, parameter estimation, hypothesis testing, and linear regression. Introduction to stochastic processes. Illustrative examples and simulation exercises from queuing, reliability, and other CS/SE applications. Credit cannot be received for both courses, (CS 3341 or SE 3341 or STAT 3341) and ENGR 3341.

Student Learning Objectives/Outcomes

Students will learn fundamental rules of Probability, discrete and continuous distributions, and statistical methods most commonly used in Computer Science and Software Engineering. They will be introduced to stochastic processes, Markov chains, statistical inference, and Monte Carlo methods and will apply the theory and methods to the evaluation of queuing systems and computation of their vital characteristics.

Required Textbooks and Materials

Text: Probability and Statistics for Computer Scientists, M. Baron, CRC Press (2007) or second edition (2013), ISBN 1584886412 or 1439875901. The book is available online through the UTD Safari system – click [here](#).

Assignments & Academic Calendar: *These descriptions and timelines are subject to change at the discretion of the Professor.*

| Date | Topic |
|------------|---------------|
| August 21 | Classes Begin |
| October 11 | Mid-Term Exam |
| TBD | Final Exam |

Grading Policy

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|----------------|-----|
| HW Assignments | 10% |
| Mid-Term | 45% |
| Final | 45% |

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| 100-98, A+ | 97-92, A | 91-90, A- |
| 89-88, B+ | 87-82, B | 81-80, B- |
| 79-78, C+ | 77-72, C | 71-70, C- |
| 69-68, D+ | 67-62, D | 61-60, D |
| 59-0 ☹ | | |

The above scale is an approximation – the course will be curved.

For detailed information about University policies and procedures related to this syllabus, please refer to <http://go.utdallas.edu/syllabus-policies>.