MATH 460: Probability & Statistics — September 2018

Course Syllabus

Latest Update: Thursday 8.16.2018

Dr. Basilio

Southern California Institute of Technology

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Basic Info

Instructor	Dr. Jorge Basilio
Email	jorge.math.basilio@gmail.com
Course Start and End dates	September 4, 2018 to October 5, 2018
Course Meetings	Tuesdays and Thursdays from 5:30pm to 9:30pm
Location	Room TBA
Course website	TBA

Description

This course introduces the elements of statistical analysis, using an intuitive approach to the study of probability and probability distributions, measures of central tendency and dispersion, sampling techniques, parametric and nonparametric test of hypothesis, point and interval estimation, linear regression, and correlation. Applications to business, biological science and the social science are included.

Organization

We will be primarily using the book for all class work/homework; however, additional problems will be provided as needed. This module, we will be using http://bit.ly/scitmath (all lower-cased) as our primary webpage (select the MT 460 folder); all HW assignments/grades (via codenames) will posted here. If you are using a mobile device to view this site, it is highly recommended that you download the DropBox app. The grades will be broken up into 3 denominations: Class work, Homework, and Exams. There will be a total of 4 homework assignments; all based on the in-class assignments. Homework (HW) assignments will be due the following week, while In-Class (IC) assignments, will be due the day of. There will be one midterm exam, held on the third week, and one final exam on the fifth week.

Required Textbook & Materials

Schaum's Outlines: Probability & Statistics by Spiegel, Schiller, and Srinivasan
TI-83/83 Plus/84/89

Grading Plan

Coursework will be weighted as follows:

Grading Criteria	
In-class Assignments	5%
Homework	10 %
Midterm	40 %
Final	45 %

In-class Assignmets (ICAs)

There will be up to 6 In-Class Assignments passed out throughout the course. Generally, In-Class Assignments will be completed the day it is assigned.

Homework

There are 4 homework assignments. Each assignment covers topics from each week, respectively. Generally, Homework Assignments will be collected one week after they are assigned. A homework assignment is assigned as soon as we cover the section(s) for that homework assignment (See HW folder on DropBox).

Midterm

The Midterm will include topics covered during the first three weeks of the course.

Final

The Final Exam will be a comprehensive exam of all materials covered in the course.

Make-up Policy

For exams and finals, this course follows the school's make-up policy, which is stated in the SCIT Catalog (available online at https://www.scitech.edu or by visiting the Student Services Office). If students have circumstances that prevent them from attending a course to attempt at completing an exam or final, then the student is advised to inform the **Student Services Office as soon as possible**. The timing, reasons and past history for requesting make-up examinations will impact whether or not a make-up exam will be allowed and/or whether or not there will be a grading penalty for taking a make-up exam. Please visit the Student Services Office for more information (or contact the office via email: studentservices@scitech.edu).

For homework assignments, every day the homework assignment is late there will be a reduction of 10% from the homework?s final grade. There will be exceptions for extenuating circumstances and will be solely determined by the instructor.

Tentative Schedule

This is a tentative schedule for the course and may change as the course progresses.

Schedule

Week 1: Topics

Chapter 1:

- Sets
  - Compliments
  - Unions
  - Intersections
- Probabilities
  - Definition/Properties
  - Conditional Probability
- Counting
  - Permutations
  - Combinations

Chapter 5:

- Organizing and Visualizing Data
  - Frequency Distributions
  - Relative Frequency Distributions
  - Bar Graphs and Histograms
- Measurements of Central Tendency
  - Mean
  - Median
  - Mode
  - Five Number Summary
- Measurements of Dispersion
  - Standard Deviation & Variation
  - Range

Week 1: Assessment

- ICA #1 - Assigned on Tuesday
- ICA #2 - Assigned on Thursday
- HW #1 - Assigned

Week 2: Topics

Chapter 2:

- Probability Distribution Functions
  - Binomial Distribution
  - Empirical Rule
  - Normal Distribution
  - Poisson Distribution
  - Inverse Norm

Chapter 3:

- Expectation
  - Expected Value
  - Fairness

Week 2: Assessment

- ICA #3 - Assigned on Tuesday
- ICA #4 - Assigned on Thursday
- HW #2 - Assigned

Week 3: Topics

- Review for Midterm
- Midterm

Week 3: Assessment

- Review for Midterm
- HW #3 - Assigned

Schedule Cont.

Week 4: Topics

Chapter 3:

- Misc. Probability Distribution Functions
  - Chi-Squared Distribution
  - Student?s t Distribution
  - F Distribution

Chapter 6:

- Confidence Intervals
- Hypothesis Testing
- Level of Significance

Week 4: Assessment

- ICA #3 - Assigned on Tuesday
- ICA #4 - Assigned on Thursday
- HW #2 - Assigned

Week 5: Topics

- Review for Final Exam
- Final Exam

Week 5: Assessment

- Review for Final Exam
- Last week to turn in any ICA/HW

Classroom Rules of Conduct

Rules

1. No cell phones or other electronic devices during class (must be turned off or on airplane mode).
2. Food is not permitted. Beverages must be in close lid bottles or containers (so no open cans).
3. Students must adhere to the SCIT Student Code of Conduct at all times. Any violations of the Student Code of Conduct will be immediately referred to the appropriate school official.