I) Basic Course Information

A) Instructor’s Name: Donna Tupper
B) Instructor’s Office Room Number: F-102, but I am only there on the fourth Tuesday of the month. Instructor’s Contact Information: Phone at 443-840-2219 or Email at dtupper@ccbcmd.edu
C) Instructor’s Office Hours: Monday, Wednesday, Friday from 6:30PM – 7:25PM in the class chat room in Bb. Chat is not mandatory as long as you understand the material. However if you begin struggling with the course material, you are expected to start coming.
D) School of Mathematics and Science Essex Campus Phone Number: 443-840-2662.
E) Class Meeting Day(s), Time(s), and Location(s): The class is located in Bb, so it is available any time as long as the server is up.
F) Out of Class Work Expectations: This is a four-credit course offered over 14 weeks. Since our class is online, you are expected to complete at least 12 - 15 hours of work per week outside of the class including reading, class preparation, homework, studying, etc.
G) Materials Needed: Textbook – Introductory Statistics with Minitab, DeVeaux Edition 3, Addition Wesley, publisher MINITAB software will be used in this course. You can find MINITAB on the computers in our classroom, the library, and the Student Success Center. If you would like to have MINITAB on your personal computer you can download a 6 month rental at http://www.onthehub.com/minitab
H) Prerequisites: RDNG 052 or ESOL 054 and Algebra I and II or a satisfactory score on the MATH placement test or satisfactory completion of MATH 083.
I) Course Description: Students will develop an understanding of statistical methodology and use of critical judgment in analyzing data sets Topics include descriptive statistics, introduction to probability, normal and binomial distributions, hypothesis testing, confidence intervals, regression and correlation, and chi-square distribution. A statistical computer package, e.g. Minitab, is introduced as a computational tool and integrated throughout the course.

II) Overall Course Goals

A) COURSE OBJECTIVES: Upon successful completion of this course students will be able to:
   i) Demonstrate statistical reasoning in everyday life using real world data. (I,IV,V,1,2,3,6,7)
   ii) Apply technology to manage data, explore data, perform inference, and check conditions. (IV,4)
   iii) Describe data with appropriate measures of central tendency and variability. (I, IV,V,1,3,4,6,7)
   iv) Generate and interpret statistical graphs. (I,IV,V,1,3,4,6,7)
   v) Analyze bivariate data using linear regression. (I,IV,V,1,3,4,5,6,7)
   vi) Apply statistical methods to data from diverse cultural and global populations. (III, V)
   vii) Construct and interpret probability models for discrete random variables. (I,IV,1,4,6,7)
   viii) Solve a normal probability distribution application. (I,IV,1,4,6,7)
ix) Apply the fundamentals of probability in application. (I, IV, 1, 3, 4, 6, 7)

x) Construct and interpret confidence intervals in order to make inferences about parameters. (I, IV, V, 1, 3, 4, 5, 6, 7)

xi) Perform hypothesis testing to draw inferences regarding parameters. (I, IV, V, 1, 3, 4, 5, 6, 7)

xii) Perform a test of independence using the chi-square distribution. (I, IV, V, 1, 3, 4, 6, 7)

xiii) Construct a solution to real world problems using problem methods individually and in teams. (II, III, V, VI, 2, 3, 7)

xiv) Examine the mathematical contributions made by people from diverse cultures throughout history. (V, 5)

xv) Communicate the results of a statistical analysis effectively. (II, 2)

B) Major Topics

i) Introduction
   1) Statistical terminology.
   2) Sampling Techniques
   3) Statistical literacy

ii) Descriptive Statistics
   1) Graphs
   2) Measures of Central Tendency
   3) Measures of Variability
   4) Measures of Position

iii) Probability
   1) Fundamentals and basic concepts
   2) Addition rule
   3) Multiplication rule
   4) Conditional Probability

iv) Discrete Random Variables
   1) Probability Distributions
   2) Expected Value and Standard Deviation
   3) Use and interpret binomial probabilities
   4) Mean and standard deviation of a binomial random variable

v) Normal Distribution
   1) Characteristics of the normal distribution
   2) Use and interpret normal probabilities

vi) Sampling Distributions
   1) Central Limit Theorem (CLT)
   2) Mean and Standard Error
   3) Apply CLT in application

vii) Estimates and Confidence Intervals
   1) Introduction to the t-distribution
   2) Confidence Interval for a population mean
   3) Confidence Interval for a population proportion

viii) Hypothesis testing
   1) Purpose of a hypothesis test
2) Hypothesis test of a population mean
3) Hypothesis test of a population proportion
4) Hypothesis testing for two population proportions and means

ix) Regression and correlation
1) Scatter plot
2) Use and interpret the correlation coefficient
3) Use and interpret the linear regression

x) Chi-Square Distribution
1) Test of Independence

C) Rationale: (Instructor’s statement relating course content to student’s personal and academic growth, etc.)

Statistics is used in a great number of areas such as business, psychology, nursing and medicine, biology, and the social sciences. This course will provide the basics of descriptive and inferential statistics so that students will be more able to read and interpret research articles in the student's field. In addition, the student should be better able to understand statistics as it is used in everyday life and in newspaper and magazine articles.

III) Evaluation

A) Requirements: You are required to have a TI83 or TI84 graphing calculator. If you do not own one, you can borrow one from the library on the Essex Campus.

B) Instructor’s Grading Policy: There are four tests which combine for 90% of your total course grade. There are also five web assignments which account for the remaining 10%. Apply the formula below to determine your final average. We talk about weighted means in chapter four of the course.

Final Average = 0.2*(exam 1 + exam 4) + 0.25*(exam 2 + exam 3) + 0.02(sum of all five web assignments)

A final course grade will be assigned using the following criteria:

<table>
<thead>
<tr>
<th>Final Average</th>
<th>Final Grade</th>
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<tbody>
<tr>
<td>At least 90%</td>
<td>A</td>
</tr>
<tr>
<td>At least 80% and less than 90%</td>
<td>B</td>
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<tr>
<td>At least 70% and less than 80%</td>
<td>C</td>
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<tr>
<td>At least 60% and less than 70%</td>
<td>D</td>
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<tr>
<td>Less than 60%</td>
<td>F</td>
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C) Math Department Attendance Policy
i) You are expected to attend all scheduled classes.
ii) Attendance is critical to student success in college.
iii) Satisfactory attendance is defined to be at most six hours of unexcused absences.
iv) Documentation of the reason for your absence(s) may be required.
v) The instructor may count each unexcused tardy arrival as an absence and each early departure as an absence.

D) Math Department Audit Policy: Students may change from credit to audit only during the published 50% refund period, as indicated in the CCBC academic calendar. Students who audit are required to attend class, participate in course activities, and complete assignments (except for tests and the final exam) in accordance with instructor guidelines and due dates. For students who do not meet these requirements, the instructor may change their grade from AU to W.

IV) Course Procedures

A) My general policy is to answer all emails received by 9PM the same day. Any correspondence received after 9PM will be answers the next day. Exceptions will be made if I am in Baltimore or away at a conference.

B) College Wide Policies: For college-wide syllabus policies such as the Code of Conduct related to Academic Integrity and Classroom Behavior, or the Audit/Withdraw policy, please go to the “MySyllabiPolicies” tab on the MyCCBC page in the Student Portal.

C) Contact information for course-related concerns: Students should first attempt to take concerns to the faculty. If students are unable to resolve course-related concerns with the faculty member they should contact Sylvia Sorkin, Essex Campus Coordinator of Mathematics, at SSorkin@ccbcmd.edu or 443-840-2661.

D) Course Calendars
   - Fall 2012 Academic Calendar: http://ccbcmd.edu/registration/fall_collegecal.html
   - Fall 2012 Final Exam Schedule: http://ccbcmd.edu/media/registration/finalexams_fall.pdf

V) CLASS FINAL EXAM DATE: December 10, 2012

TENTATIVE LIST OF DATED ASSIGNMENTS

Listed below are the starting and ending dates for each chapter in the course. All text homework and bonus exercises need to be finished by the ending date of the chapter they correspond to. You may have a few extra days for any web assignments.

August 27 - 29, 2012

Chapter 1 and Chapter 2 – Data

NOTE: Chapter 1 is strictly a few pages to read in the text book. There are no online lecture notes or homework for this chapter.

August 30 - September 2, 2012
Chapter 3 – Displaying and Describing Categorical Data

September 3 - 6, 2012

Chapter 4 – Displaying and Summarizing Quantitative Data

September 7 - 10, 2012

Chapter 5 – Understanding and Comparing Distributions

September 11 - 14, 2012

Chapter 6 – The Standard Deviation as the Ruler and The Normal Model

September 15 - 18, 2012

Chapter 7 – Scatterplots, Association, and Correlation

September 19 - 22, 2012

Chapter 8 – Linear Regression

This ends unit 1. Make plans to take test 1 no later than September 29, 2012.

September 23 - 26, 2012

Chapter 12 – Sample Surveys

September 27 - 30, 2012

Chapter 13 – Experiments and Observational Studies

October 1 - 4, 2012

Chapter 14 – From Randomness to Probability
October 5 - 8, 2012

Chapter 15 – Probability Rules

October 9 - 12, 2012

Chapter 16 – Random Variables (Text only. No online lecture notes.)

October 13 - 16, 2012

Chapter 17 – Probability Models

This ends unit 2. Make plans to take test 2 no later than October 23, 2012. Use the time between the 17th and the 24th to get caught up. I expect ALL of you to be caught up by the 24th. I will not be accepting unit 1 or 2 material after that date.

October 17 - 20, 2012

Chapter 18 – Sampling Distributions Models

October 21 - 25, 2012

Chapter 19 – Confidence Intervals for Proportions

October 26 – October 30, 2012

Chapter 20 – Testing Hypotheses About Proportions

October 31 – November 4, 2012

Chapter 21 – More About Tests

November 5 - 10, 2012

Chapter 22 – Comparing Two Proportions
This ends unit 3. Make plans to take test 3 no later than November 17, 2012. Keep in mind that I may not actually receive the exam until after Thanksgiving break, which is November 21 – 25.

November 15 – 20, 2012

Chapter 23 – Inferences About Means

November 21 – 25, 2012

THANKSGIVING BREAK

November 26 – November 30, 2012

Chapter 24 – Comparing Means

December 1 - 4, 2012

Chapter 26 – Comparing Counts (Chi Square)

This ends unit 4. Make plans to take test 4, the final exam, no later than December 10, 2012.