

Introduction to Statistics (WEB) - Syllabus

Spring 2015

EDP 371

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Purpose of this course

Welcome to the Spring 2015 online section of EDP 371: Introduction to Statistics. We hope that you find this course interesting, stimulating, challenging and worth all the effort you put into learning the material and mastering the skills.

The purpose of this course is for you to become statistically literate. Throughout this class there will be one central question that we will ask over and over: How can we conclude things about the many, when we only know about the few! How do we say anything meaningful about populations of thousands and millions, when all we have in front of us are small samples! How can we accurately predict the future, when all we experience is the present!

I invite you to accompany your classmates and me on a journey where we hope to do all these magical things.

This course is mostly self-paced. There are no required lectures or online conferences to attend. The only deadlines are the dates for the four course exams and 2 homework assignments. You can read more about these below.

As you look at the Canvas Home Page, the left side contains tabs with the names of the principal features of the course. At the top of the page, you will see arranged in a row the titles (1) Courses, (2) Assignments, (3) Grades, and (4) Calendar. You can ignore information on the right side of the page. The most important tabs for you at this point in the course are the Modules tab on the left and the Calendar tab at the top. If you move the cursor to the Modules tab and click on it, you will see the content of the course and if you click on Calendar you will see the dates that tests and certain assignments are due. If you need more assistance with using Canvas, on the left side is a tab called "Canvas Tutorials". Under the tutorial for students, you will find more information about Canvas and how to use it.

The readings for this course are in a course packet under Dr. Tombari's name. The packet is called "*Stat Sense: Thinking Clearly About Data*". It is in the Campus COOP bookstore. Make sure to purchase it promptly. It contains material that you will need for exams that you can find nowhere else such as tables, research articles, and work sheets.

The Syllabus tab shows important dates when tests and assignments are due, so be sure to view this now and plan your semester accordingly. *The mid-term and final exams are given on campus* and you have a choice of three nights during which you may take these exams. So mark these nights on your personal calendar as soon as possible.

The Modules tab displays the organization of the course and contains all the readings, media, practice tests, and other resources that you will need to be successful in statistics.

Please read carefully what follows.

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Organization of the Course

The course is organized into 13 Units. Each Unit contains a variety of resources to help you master statistical reasoning and statistical computations. It is important that you use all these resources. Click on the Modules Tab.

Objectives and Readings:

This section identifies the important skills that you will be learning and highlights the main points of the readings. The objectives are the focus of the readings, activities, videos, practice tests, and exams. They indicate what you will be asked to demonstrate on the exams. Thus it is important for you to reflect on these skills and, at the end of each module, judge the extent to which you have learned them. As you study the chapter readings, complete the assignments, watch the videos, and take the practice tests, keep these objectives in mind. Knowing about them will give a focus and sense of purpose for your study, and assure that you will succeed on the exams. If you are not sure what a particular objective means, send us an email, participate in the discussion board, or contact us during office hours. We will be happy to explain exactly what is expected of you.

The Unit readings will explain the whats, whys, and wherefores of what you will be learning. They stress understanding of why the formulas look as they do. There is plenty of opportunity to practice the skills. Your mastery of statistics will depend less on mathematical sophistication than on your clear and logical thinking. There is a logic behind statistical reasoning and problem solving that will require a lot of

thought, reflection, and practice to acquire. You will grasp some sections of the readings immediately. Other sections you may have to read, re-read, and re-read again to make some sense of the information. Thinking like a statistician is not something we were born with. It is an acquired skill. Be patient with yourselves and you will get it.

Power Point Presentations and Videos

After you have read and studied the Units, we have provided power point presentations to reinforce what you have learned. Some of these presentations are narrated and include useful visual material. These presentations cover material in the Units in a slightly different way. These PPTs have been adapted from several text books and may contain some slightly different formulas and symbols than were used in your course packet. Although you may see a Chapter name in the video that is different from the Unit title that it goes with, the material is the same as is presented in each Unit.

At different times during the semester, Dr. Tombari will post class lectures and demonstrations from his on-campus stat courses during Spring 2015. These lectures will appear under the Units that cover the content of the lecture. We will let you know as soon as these presentations are posted.

You Tube Videos

We have reviewed some of the best demonstrations of statistical routines and concepts that have been catalogued on You Tube. Along with the PPTs, they will further enrich your grasp of the important concepts and procedures that you learned in the Units included in the course packet.

Unit Practice Problems

Each unit includes a variety of questions (and answers) that will prepare you for the 4 course exams. Be sure to do all of them. Taking these tests and evaluating your learning regularly throughout the semester is one of the best ways to learn. These self-tests will let you know how well you have acquired the statistical skills explained in the chapter. These exercises are not graded. They will help you to learn better the skills that you will be tested over.

The best way to prepare for the exams is to do these problems and make sure that you understand exactly why you solved a problem correctly or why you may have gotten it wrong. The more of these problems at the end of each Unit that you do, and the more you understand why you did or did not do them correctly, the more successful you will be on your exams.

Data Sets

The data set activities have been designed to allow you to become familiar with

working with data. The data sets are in Excel format and you will be asked to answer questions about the data with the use of Easy Calculator, an online statistics tool. We posted these data sets and some other useful resources in the "***Course Introduction and Materials***" section just before the list of the 13 Course Units. You will see a link to Easy Calculator to help you compute some of the more challenging statistical routines. ***Units 10 and 11 data-set exercises will be turned in for a grade.*** These two exercises will be locked until March 15th, and are due mid-night, April 18th. You will be penalized for lateness. The data-set exercises that you need not turn in to us have the answers following them.

Review Questions

Each Unit ends with 10-20 question self-tests to allow you to evaluate how well you have learned the material.

Additional Readings

Each Unit contains a section titled 'Additional Readings. These readings are from on-line textbooks that explain the concepts that you read about in each Unit in a slightly different way. After you have read the Units, and taken the Unit self-tests, if you believe you need more practice or reinforcement, these additional readings are just the thing for you. They contain practice questions and exercises like the ones you been doing in the Units.

Four Practice Exams

You have approximately three weeks between exams. The best way to assess how ready you are to take them is to take the practice exams and score your performance. The questions in these practice tests are similar to the questions on the exams.

You may print copies of these tests and solve the problems, but you need not send them to us. If you score below 80% (fewer than 24/30 questions correct) you should review the sections in the text book that explained the knowledge and skills that these questions assess.

The answers to these questions are listed on a separate page in the module following the practice test. Try not to guess the correct answer if you are not sure of it. If you do guess and get an item correct, make sure you understand why it is correct after you check your answers with the ones given in the module. And make sure that you understand why you may have gotten a particular question wrong.

Students often visit us during our on-campus office hours and on-line hours to go over these practice tests.

Course Exams

Exams 1 (Units 1-4), and 3 (Units 9 & 10), each contain 30 questions that assess how well you have learned the objectives of the units covered by the exams. The mid-term (Exam 2) and final exam (Exam 4) are 50 multiple choice questions long. The mid-term will cover Units 1-8 and the final 9-13. ***The mid-term and final exams are 2 hours long and are given on campus.***

The best way to prepare for these exams is to make sure that you can demonstrate the skills that each objective describes. If you have done all the assignments and taken the practice tests and done well, then feel confident that you know these skills. The test questions were built directly from the objectives. So if you know how to do the objectives you will know exactly what is expected of you on the tests.

Do not click on the "take the test" button for the 2 online tests until you are ready to complete the test. You are given only 1 attempt at the exams and you will have 75 minutes to complete exams 1 and 3. Once the timer for the online tests has begun, you must complete the test. These exams have deadlines as indicated in the calendar. You have approximately 3 weeks to complete Exams 1 and 3. If you do not complete the exams in this time you will get a zero. There are no make-ups for these tests, unless you provide a legitimate, documented excuse to us. 30% of your grade is based on these two tests so it is very important that you don't miss any.

Weekly Review

The TA's will be contacting students who have performed poorly on exams. We will set up weekly review sessions for all students but especially those of you who need extra help. We will let you know when and where these optional session will be held.

In addition, Dr. Tombari will present a live lecture once a week on Monday nights that will be streamed to your computers. You may also attend these lectures on campus. **The exact time and place will be announced.** The purpose of these optional lectures is to review important concepts that you are learning in the course and to give you an opportunity to ask questions and discuss concepts in a live class format.

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Course Requirements:

Your grades will be based on: (A) Two Unit Exams which will make up 30% of your grade; (B) two assignments which will count 10% of your grade; (C) a mid-term

exam which will count 30% of your final grade; and (D) a final exam which will also count 30% of your final grade. Both mid-term and final will be taken at the University of Texas on dates and times shown in the table below.

You must take all exams to receive credit for this course.

You are required to participate in a brief research study and you will receive a letter about this at the start of the semester.

Some Final Points

As you begin studying the material and doing the exercises you will undoubtedly have questions and concerns. I encourage your emails. Dr. Tombari's email is: mtombari@austin.utexas.edu. Check out the "Need Help" page in the Course Introduction and Materials Module for alternative ways to get help. I guess this is a good time to introduce myself! My name is Martin Tombari and I am the instructor of record for this course. I teach four on-campus sections of EDP371 during the regular term. You may visit me during on campus or online office hours. My online office hours are Wednesday from 2-4 and my on campus office hours are Wednesday from 10-12.

Schedule of Topics and Tests

Dates	Topic	Readings
1/20 - 2/14	What is Statistics?	Unit 1
	Tables and Graphs	Unit 2
	Averages	Unit 3
	Variability	Unit 4
2/15	TEST # 1 Due 2/15 at 11:59 PM (Units 1-4)	<i>Units 1-4</i>

2/16 - 3-12	Z-scores	Unit 5
	The Standard Normal Distribution	Unit 6
	The Central Limit Theorem	Unit 7
	Confidence Intervals	Unit 8
3/12-3/14 7-10PM	On Campus Mid Term Exam (ART-1.104) You have choice of 3 dates.	<i>Units 1-8</i>
3/15- 4/12	Hypothesis Testing	Unit 9
	Inferences About Averages	Unit 10
4/12	Test # 3 Due 4/12 at 11:59PM	<i>Units 9 & 10</i>
4/12 - 4/30	Correlations and Predictions	Unit 11
	Inferences About Associations	Unit 12
	Inferences About Proportions	Unit 13
4/30 - 5/2 7-10PM	On Campus Final Exam (ART 1.104). You have choice of 3 dates.	Units 9-13

How Grades Will Be Assigned

Your grades on all 4 tests and the two data sets will be totaled, averaged, and weighted. The following percentages will be used to assign final grades:

<i>Overall Course Percent</i>	<i>Grade</i>
90% - 100%	A
80% - 89%	B
75% - 79%	C
70% - 74%	D
Below 70%	F