TENTATIVE SYLLABUS - ECO 578

01W 02W 03W

Statistical Methods

Spring – 2019

Instructor: Dr. Chuck Arize
Office Location: BA 212
Office Hours: T & F 2.00 P.M. – 3.00 P.M.
Office Phone: (903) 886-5691
Office Fax: (903) 886-5601
University Email Address: chuck.arize@tamuc.edu

Preferred Form of Communication: Web Based Class
Communication Response Time: We would respond to your emails within 36 hours except on weekends.

COURSE INFORMATION

Textbook(s) are required: this semester edition is ***"Statistics classnotes ECO 578 Spring 2019"* by Economics and Finance Department**

****Must have this classnote**, Available only in the university bookstores, also order the book well in advance before it runs out of stock, to avoid delays.

Optional but not required text: Since you have had BA541 or BA302, you may find a book in the library as supplement.

PowerPoint: In order to gain more understanding in the class note book, all of you **must go through the PowerPoint of each chapter thoroughly. See course-home on myLeo Online D2L for more information.**

IMPORTANT NOTICE

***** Note that this is a tentative syllabus meaning that I can change (a) certain dates for the exams and (b) certain topics to be covered.**

***** Since this is a graduate statistics course, I will constantly assume that students have mastered undergraduate statistics work. My classnote covers the most relevant materials, so a student may refer to other texts, if necessary. However, I believe that a student can make an "A" using only the classnote book.**

***** If you have not taken any statistics course in the last two years, my suggestion is that you borrow a statistics book from the nearest library to aid your understanding of my classnotes or take the first pre course BA 501. However, I will focus on the classnotes in teaching the class.**

***** Also, note that I do not return your graded paper, but upon request I will be able to tell you what you missed on a test via e-mail. (Request period is 2 days after receiving exam grade)**

***** Although you have your classnote book as well as other books, available in the library, you are not permitted to copy from your textbook due to copyright protection for author and publishers. We have continued to fund excellence/scholarships from the residual from the sales of classnotes since 1994, we have given over 262 awards from this fund.**

***** Please do not ask for an early, delayed or special exam, as we treat all the students equally and fairly. Since the exam dates are already provided to you in advance, thus you need to plan your holidays in advance such that it does not coincide with the exam days.**

*****Any communication, in any form with other students relating to the Exam content while the exam is open will be considered cheating and penalty would apply as determined by the professor thus refrain at all cost.**

Course Description: A course dealing with statistical concepts including measures of central tendency and dispersion, probability distributions, the Central Limit Theorem, Sampling, Estimation, Hypothesis testing, Analysis of Variance, Correlation and Regression analysis, Multiple Regression and Statistical Forecasting and Non parametric tests.

Additional Course Description: Course Prerequisite BA 302/ BA 501/ ECO 302 / ECO 502 or acceptable undergraduate course in statistics.

Student Learning Outcomes

Course Objectives: The objective of this course is to provide a foundation for the graduate business student on basic principles of statistics to include measurements of location and dispersion, probability, probability distributions, sampling, estimation, hypothesis testing, regression and correlation analysis, and multiple regression. The following are specific objectives for the course that the student will

1) Learn how to calculate and apply measures of location and measures of dispersion -- grouped and ungrouped data cases.
2) Learn how to apply discrete and continuous probability distributions to various business problems.
3) Understand the hypothesis testing:
   3.1 Be able to perform Test of Hypothesis
   3.2 Calculate confidence interval for a population parameter for single sample and two sample cases.
   3.3 Understand the concept of p-values.
4) Learn non-parametric test such as the Chi-Square test for Independence as well as Goodness of Fit.
5) Understand regression analysis:
   5.1 Be able to compute and interpret the results of Bivariate Regression
   5.2 Be able to compute and interpret the results of Multivariate Regression.
   5.3 Be able to compute and interpret Correlation Analysis
   5.4 Be able to perform ANOVA and F-test.
   5.5 Be able to understand both the meaning and applicability of a dummy variable.
   5.6 Be able to understand the assumptions which underline a regression model.
   5.7 Be able to perform a multiple regression using computer software.

COURSE REQUIREMENTS

Materials we provide for the Class:

1. We provide Power Point Presentation for each lecture. You can go to Myleo and visit eCollege you will find the Module on the left hand and then click lecture, then you can listen to the video for the specific chapter. If you want to print out a specific Power Point, you can go to Doc-sharing, and click Power Point version and scroll down to see the downloadable documents so you can print it out.

2. In classnotes, there are lots of examples and exercises to learn and practice.

3. In Doc-sharing, we also provide the solutions for selected questions so that you can check your work after finished. You can download the solutions of the homework and use them to practice.

4. We do have class-live sessions, and you will be informed before each class-live session.

5. In welcome email which we send you at the beginning of the semester, you will find attachment files. You can review these documents before your book arrives so that you do not get behind the class.

Student Responsibilities: Classroom Demeanor --"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." See Student's Guide Book.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Grading Policy:
Grade Component

Online Class	
	Weight %
Exam I	20%
Exam II	20%
Final Exam	40%
Journal Article & Homework	20%
Total	**100%**

Assessments:
Grade explanation by assessment type (percentage or points toward final grade)

COURSE OUTLINE / CALENDAR

EXAMS SCHEDULE:

Exams	Exams Uploaded by Noon (CST)	Due Date by Noon (CST)	Chapters Covered
Exam 1	February 15, 2019	February 18, 2019	2, 3, 4, 5
Exam 2	March 22, 2019	March 25, 2019	6, 7, 8, 9
Final Exam	April 26, 2019	April 29, 2019	Comprehensive

JOURNAL PROJECT:

The information about the project will be communicated to the class before it is uploaded.

Uploaded by Noon (CST)	Due Date by Noon (CST)
April 1, 2019	April 26, 2019

***For more details concerning the above course objectives, see the last page.

Texas A&M University-Commerce
College of Business & Technology
Student Appeal of Course Grade
(Refer to TAMUC Procedure: 13.99.99.R0.05)

TEXAS A&M UNIVERSITY-COMMERCE PROCEDURE
13.99.99. R0.05 Student's Appeal of Instructor's Evaluation Effective September 1, 1996 Revised December 15, 1999 Revised February 8, 2007 Supplements System Policy 13.02

1. The final grades awarded by faculty members are their expert judgment concerning student performance. Students challenging a final grade must show that the instructor's judgment was unfair based on: a) some basis other than performance, or b) standards different from those applied to other students in the same course section, or c) a substantial, unreasonable, and unannounced departure from previously articulated standards or the syllabus.
2. Students who believe their grade to be unfair must first discuss the matter with the instructor.
3. If no satisfactory resolution is reached with the instructor, or if the instructor is unavailable, the student shall appeal to the Department Head. A grade appeal must be initiated in writing with the Department Head (or Dean if the Department Head is the instructor) within six (6) months of the last day of the semester in which the grade was awarded. The Department Head will examine the student's appeal to determine whether the student has established an apparent case of unfair academic evaluation as described in section 1. If the student has not established a case that appears to have merit, the Department Head will so inform the student and the instructor without delay.
4. If the case has merit, the Department Head will secure, from all parties, written statements and other such information as he or she deems helpful and will issue his or her findings and remedies, if any. In so doing, the Department Head will be guided by the principle the burden of proof lies with the student.
5. The instructor or the student may appeal the Department Head's decision (with respect to findings and remedies) to the Dean of the College in which the course is offered within 30 days of the date on which the Department Head offered his or her judgment.
6. Upon receipt of an appeal, the Dean will appoint a three-person advisory committee of faculty to hear the case. The chair of the committee will be from a department other than the one offering the course in question. The two remaining committee members will be from the department offering the course. One of these faculty members may be suggested by the author of the appeal. The instructor and the student may file additional statements. The committee will review all written materials and may seek other information, as they deem appropriate. After reviewing all information, the committee will communicate their findings and suggested remedies, if any, to the Dean.
7. The Dean is the final authority on issues of fairness in course evaluation. He or she will consider the recommendations of the committee but has wide latitude in resolving the matter. The Dean too will be guided by the principle that the student must show the evaluation to have been unfair as identified in Section 1.
8. The Dean is responsible for notifying the Office of the Registrar of any decision requiring a change in records.

References: Prior ETSU Policies V C 1.1 and B-32 approved October 7, 1977; revised September
1, 1979, January 19, 1990, July 30, 1998, and December 15, 1999; Procedure A13.06

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CONTACT FOR INTERPRETATION: Provost and Vice President for Academic Affairs

NOTE THE FOLLOWING

1. This syllabus is tentative for the semester. It is meant to be a guide. Certain topics may be stressed more or less than indicated in the class note books and, depending on class progress, certain topics may be omitted.
2. Homework problems may be recommended on a regular basis.
3. Missed examination: A missed examination will be considered as 'F'.

TECHNOLOGY REQUIREMENTS

Browser support

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality are also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supporting browsers and then maintenance browsers.

Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products.

Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.
- For desktop systems, you must have Adobe Flash Player 10.1 or greater.
- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

1. Desktop Support

Browser	**Supported** Browser **Version(s)**	**Maintenance** Browser **Version(s)**
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

2. Tablet and Mobile Support

Device	**Operating System**	Browser	**Supported** Browser **Version(s)**
Android™	Android 4.4+	Chrome	Latest
Apple	iOS®	Safari, Chrome	The current major version of iOS (the latest minor or point release of that major version) and the previous major version of iOS (the latest minor or point release of that major version). For example, as of June 7, 2017, D2Lsupports iOS 10.3.2 and iOS 9.3.5, but not iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
  - 512 MB of RAM, 1 GB or more preferred
  - Broadband connection required courses are heavily video intensive
  - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

- You must have a:
  - Sound card, which is usually integrated into your desktop or laptop computer
  - Speakers or headphones.
  - *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.

- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site http://www.java.com/en/download/manual.jsp

- Current anti-virus software must be installed and kept up to date.

- Run a browser check through the Pearson LearningStudio Technical Requirements website. Browser Check http://help.ecollege.com/LS_Tech_Req_WebHelp/en-us/#LS_Technical_Requirements.htm#Browset

Running the browser check will ensure your internet browser is supported.

Pop-ups are allowed.
JavaScript is enabled.
Cookies are enabled.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
  - o Adobe Reader https://get.adobe.com/reader/
  - o Adobe Flash Player *(version 17 or later)* https://get.adobe.com/flashplayer/
  - o Adobe Shockwave Player https://get.adobe.com/shockwave/
  - o Apple Quick Time http://www.apple.com/quicktime/download/

- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

- For additional information about system requirements, please see: System Requirements for LearningStudio https://secure.ecollege.com/tamuc/index.learn?action=technical

ACCESS AND NAVIGATION

Pearson LearningStudio (eCollege) Access and Log in Information

This course will be facilitated using Pearson LearningStudio, the learning management system used by Texas A&M University-Commerce. To get started with the course, go to myLeo. http://www.tamuc.edu/myleo.aspx

You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu**.**

It is strongly recommended that you perform a "Browser Test" prior to the start of your course. To launch a browser test, login to Pearson LearningStudio, click on the "My Courses" tab, and then select the "Browser Test" link under Support Services.

Pearson Learning Studio Student Technical Support

Texas A&M University-Commerce provides students technical support in the use of Pearson LearningStudio.

Technical assistance is available 24 hours a day/ 7 days a week.

If at any time you experience technical problems (e.g., you can't log in to the course, you can't see certain material, etc.) please contact the Pearson LearningStudio Help Desk, available 24 hours a day, seven days a week.

The student help desk may be reached by the following means 24 hours a day, seven days a week.

- **Chat Support:** Click on *'Live Support'* on the tool bar within your course to chat with a Pearson Learning Studio Representative.
- **Phone:** 1-866-656-5511 (Toll Free) to speak with Pearson Learning Studio Technical Support Representative.
- **Email:** helpdesk@online.tamuc.org to initiate a support request with Pearson LearningStudio Technical Support Representative.

Accessing Help from within Your Course: Click on the *'Tech Support'* icon on the upper left side of the screen inside the course. You then will be able to get assistance via online chat, email or by phone by calling the Help Desk number noted below.
Note: Personal computer problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, an Internet cafe, or a bookstore, such as Barnes & Noble, etc.
Policy for Reporting Problems with Pearson LearningStudio

Should students encounter Pearson LearningStudio based problems while submitting assignments/discussions/comments/exams, the following procedure **MUST** be followed:

1. Students must report the problem to the help desk. You may reach the helpdesk at helpdesk@online.tamuc.org or 1-866-656-5511
2. Students **MUST** file their problem with the helpdesk and obtain a helpdesk ticket number
3. Once a helpdesk ticket number is in your possession, students should email me to advise me of the problem and to provide me with the helpdesk ticket number
4. At that time, I will call the helpdesk to confirm your problem and follow up with you

PLEASE NOTE: Your personal computer/access problems are not a legitimate excuse for filing a ticket with the Pearson LearningStudio Help Desk. You are strongly encouraged to check for compatibility of your browser **BEFORE** the course begins and to take the Pearson LearningStudio tutorial offered for students who may require some extra assistance in navigating the Pearson LearningStudio platform. **ONLY** Pearson LearningStudio based problems are legitimate.

Internet Access
An Internet connection is necessary to participate in discussions and assignments, access readings, transfer course work, and receive feedback from your professor. View the requirements as outlined in Technology Requirements above for more information.
myLeo Support
Your myLeo email address is required to send and receive all student correspondence. Please email helpdesk@tamuc.edu or call us at 903-468-6000 with any questions about setting up your myLeo email account. You may also access information at myLeo. https://leo.tamuc.edu
Learner Support
Go to the following link One Stop Shop- created to serve you by attempting to provide as many resources as possible in one location. http://www.tamuc.edu/admissions/onestopshop/
Go to the following link Academic Success Center- focused on providing academic resources to help you achieve academic success.
http://www.tamuc.edu/campusLife/campusServices/academicSuccessCenter/

FREE MOBILE APPS

The Courses apps for phones have been adapted to support the tasks students can easily complete on a smaller device. Due to the smaller screen size course content is not presented.

The Courses app is free of charge. The mobile Courses Apps are designed and adapted for different devices.

	App Title:	**iPhone –** Pearson LearningStudio Courses for iPhone **Android** – LearningStudio Courses - Phone
	Operating System:	**iPhone** - OS 6 and above **Android** – Jelly Bean, Kitkat, and Lollipop OS
	iPhone App URL:	https://itunes.apple.com/us/app/pearson-learningstudio-courses/id977280011?mt=8
	Android App URL:	https://play.google.com/store/apps/details?id=com.pearson.lsphone

Once downloaded, search for Texas A&M University-Commerce, and it should appear on the list. Then you will need to sign into the myLeo Mobile portal.

The Courses App for Android and iPhone contain the following feature set:

- View titles/code/Instructor of all Courses enrolled in online
- View and respond to all discussions in individual Courses
- View Instructor Announcements in individual Courses
- View Graded items, Grades and comments in individual Courses
- Grade to Date
- View Events (assignments) and Calendar in individual Courses
- View Activity Feed for all courses
- View course filters on activities
- View link to Privacy Policy
- Ability to Sign out
- Send Feedback

COMMUNICATION AND SUPPORT

Students can email to communicate with Professor. The email will be responded during the week day. However the Subject of the Email should have the course name as "**ECO 578 – Spring 19 – 01W-02W**"

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures
Attendance/Lateness, Late Work, Missed Exams and Quizzes and Extra Credit

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures
Student Conduct
All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See current Student Guidebook*).*

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette
http://www.albion.com/netiquette/corerules.html
ADA Statement

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: Rebecca.Tuerk@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to ((http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Rubric:

Criteria (Course Objectives) **1 (Unsatisfactory)** **2 (Emerging)** **3 (Proficient)** **4 (Exemplary)**				
1) Learn how to calculate and apply measures of location and measures of dispersion -- grouped and ungrouped data cases.	Student cannot and apply any measures of location and measures of dispersion for grouped and ungrouped data.	Student can and apply some measures of location and measures of dispersion for grouped and ungrouped data.	Student can and apply most measures of location and measures of dispersion for grouped and ungrouped data.	Student can and apply all measures of location and measures of dispersion for grouped and ungrouped data.
2) Learn how to apply discrete and continuous probability distributions to various business problems.	Student cannot apply discrete and continuous probability distributions to any business problems.	Student can apply discrete and continuous probability distributions to some business problems.	Student can apply discrete and continuous probability distributions to most of business problems.	Student can apply discrete and continuous probability distributions to all of business problems.
3)Understand the hypothesis testing: 3.1 Be able to perform Test of Hypothesis 3.2 calculate confidence interval for a population parameter for single sample and two sample cases. 3.3 Understand the concept of p-values.	3.1 Student cannot perform the test of hypothesis 3.2 Student cannot calculate confidence interval for a population parameter for single sample and two sample cases. 3.3 Student doesn‘t understand the concept of p-value.	3.1 Student can perform some test of hypothesis 3.2 Student can calculate some confidence interval for a population parameter for single sample and two sample cases. 3.3 Student understands some part of the concept of p-value.	3.1 Student can perform most test of Hypothesis 3.2 Student can calculate most confidence interval for a population parameter for single sample and two sample cases. 3.3 Student understands most part of the concept of p-values.	3.1 Student can perform all test of Hypothesis 3.2 Student can calculate all confidence interval for a population parameter for single sample and two sample cases. 3.3 Student understands the entire concept of p-values.
4) Learn non-parametric test such as the Chi-Square test for Independence as well as Goodness of Fit.	4) Student doesn‘t know non-parametric test such as the Chi-Square test for Independence as well as Goodness of Fit.	4) Student knows some parts of non-parametric test such as the Chi-Square test for Independence as well as Goodness of Fit.	4) Student knows most parts of non-parametric test such as the Chi-Square test for Independence as well as Goodness of Fit.	4) Student knows all parts of non-parametric test such as the Chi-Square test for Independence as well as Goodness of Fit.

5) Understand regression analysis:				
5.1 Be able to compute and interpret the results of Bivariate Regression	5.1 Student cannot compute and interpret the results of Bivariate Regression	5.1 Student can compute and interpret some of the results of Bivariate Regression	5.1 Student can compute and interpret most of the results of Bivariate Regression	5.1 Student can compute and interpret all of the results of Bivariate Regression
5.2 Be able to compute and interpret the results of Multivariate Regression.	5.2 Student cannot compute and interpret the results of Multivariate Regression	5.2 Student can compute and interpret some of results of Multivariate Regression	5.2 Student can compute and interpret most of results of Multivariate Regression	5.2 Student can compute and interpret all of results of Multivariate Regression
5.3 Be able to compute and interpret Correlation Analysis	5.3 Student cannot compute and interpret Correlation Analysis	5.3 Student can compute and interpret some parts of Correlation Analysis	5.3 Student can compute and interpret most parts of Correlation Analysis	5.3 Student can compute and interpret all parts of Correlation Analysis
5.4 Be able to perform ANOVA and F-test.	5.4 Student cannot solve any Questions regarding ANOVA and F-test.	5.4 Student can solve easy questions regarding ANOVA and F-test.	5.4 Student can solve medium-hard questions regarding ANOVA and F-test.	5.4 Student can solve difficult questions regarding ANOVA and F-test.
5.5 Be able to understand both the meaning and applicability of a dummy variable.	5.5 Student cannot apply the dummy variable to solve any questions.	5.5 Student cannot apply the dummy variable to solve some questions.	5.5 Student cannot apply the dummy variable to solve most questions.	5.5 Student cannot apply the dummy variable to solve all the questions.
5.6 Be able to understand the assumptions which underline a regression model.	5.6 Student does not understand the assumptions which underline a regression model.	5.6 Student understands some parts of the assumptions which underline a regression model.	5.6 Student understands most parts of the assumptions which underline a regression model.	5.6 Student understands all parts of the assumptions which underline a regression model.
5.7 Be able to perform a multiple regression using computer software.	5.7 Student is unable to perform a multiple regression using computer software.	5.7 Student is able to perform a multiple regression using computer software for easy questions.	5.7 Student is able to perform a multiple regression using computer software for medium-hard questions.	5.7 Student is able to perform a multiple regression using computer software for difficult questions.

Chapter	Objective
Chapter 1 **A First Look at Statistics**	• Define descriptive and inferential statistics. • Differentiate between a quantitative and a qualitative variable. • Differentiate between a discrete and a continuous variable. • Know the four levels of measurement – nominal, ordinal, interval, and ratio.
Chapter 2 **Ungrouped Data**	• Construct a frequency distribution and define mean, mode and median. • Define and calculate percentile and percentile Rank. • Measure variability for ungrouped data.
Chapter 3 **Grouped Data**	• Construct a frequency distribution. • Determine and compute relative frequencies, and distribution cumulative frequencies of a frequency. • Differentiate between GAP in class and Non-GAP in class of a frequency distribution. • Measure central tendency. • Measure variability for grouped data. • Define and calculate percentile and percentile Rank. • Understand and calculate Chebychev theorem.
Chapter 4 **Simple Regression**	• Understand why we use sample instead of population • Understand, interpret and calculate regression analysis.
Chapter 5 **Probability**	• Define probability. • Define marginal, conditional, and joint probabilities. • Use the special and general rules of multiplication and addition in probability computation. • Calculate marginal, conditional, and joint probabilities.
Chapter 6 **Discrete Probability Distribution**	• Describe the characteristics and compute probabilities using the binomial probability distribution both use of binomial Formula and use of tables. • Define probability distribution and random variable. • Calculate the mean, variance, and standard deviation of a discrete distribution. • Define and compute Hypergeometric Distribution
Chapter 7 **The Normal Distribution**	• Describe the characteristics and compute standard normal distribution by using formula and normal curve table. • Describe the characteristics and compute normal approximation to the Binomial distribution. • Differentiate between standard normal distribution and normal approximations to the Binomial distribution. • Describe various sampling techniques. • Explain the Central Limit Theorem. • Describe interval estimate and the confidence level. • Define and compute interval estimates of mean. • Define and compute estimates of the population proportion • Identify Type I and Type II errors. • Conduct a test of hypothesis about a population mean and a population proportion. • Conduct the test of hypothesis using one and two tail tests. • Conduct the test of hypothesis regarding one population mean with a small sample. • Define and compute hypothesis testing for comparing two means.

Chapter	Objective
Chapter 8 **Statistical Estimation**	• Describe interval estimate and the confidence level. • Define and compute interval estimates of mean. • Define and compute estimates of the population proportion
Chapter 9 **Hypothesis Testing**	• Identify Type I and Type II errors. • Conduct a test of hypothesis about a population mean and a population proportion. • Conduct the test of hypothesis using one and two tail tests. • Conduct the test of hypothesis regarding one population mean • With a small sample. Define and compute hypothesis testing for comparing two means.
Chapter 10 **Simple Regression**	• Understand the differences between various experiment designs and when to use them. • Compute and interpret the results of ANOVA. • Compute the growth rate. • Define whether the regression equation makes sense.
Chapter 11 **Multiple Regression**	• Understand linear regression model. • Describe the relationship between two or more independent • Variables and the dependent variable using a multiple regression equation. • Compute and interpret the multiple standard error of the estimate and the coefficient of determination.
Chapter 12 **Time-Series Forecasting**	• Understand the factor influencing time series data. • Define and compute the classical multiplicative time-series model. • Describe the characteristics and compute the using of smoothing method is forecasting. • Define and compute linear trend. • Describe the characteristics and compute autoregressive modeling for fitting and forecasting.
Chapter 13 **Co integration and Error-Correction Modeling**	• Understand the nature of co-integration and be able to derive co-integrating equation through error correction modeling. • Differentiate between stationary time series and non-stationary time series.
Chapter 14 **Analysis of Variance**	• Define and analyze variance. • Understand regression approach to ANOVA
Chapter 15 **Chi-Square Tests**	• Understand and interpret interaction. • Understand the chi-square goodness-of-fit test and how to use it. • Analyze data by using the chi-square test of independence.
Chapter 16 **Proportions**	• Define and compute test for differences between proportions for large samples sizes. • Define and compute test for differences between proportions of a multinomial population.