MGMT 650 5021 Statistics for Managerial Decision Making (2172)

MGMT-650

Spring 2017  Section 5021  3 Credits  01/30/2017 to 04/23/2017

Class Summary

T 06:00:00 PM 09:00:00 PM

Faculty Contact

Steven Chasen Steven.Chasen@faculty.umuc.edu

Course Description

Prerequisite: Knowledge of the fundamentals of statistical methods, techniques, and tools. An examination of how managers organize, analyze, and interpret data for decision making. Focus is on developing skills in using statistical tools to make effective business decisions in all areas of public and private-sector decision making, including accounting, finance, marketing, production management, and human resource management. Topics include collecting data; describing, sampling, and presenting data; probability; statistical inference; regression analysis; forecasting; and risk analysis. Microsoft Excel is used extensively for organizing, analyzing, and presenting data.

Course Introduction

This is a 3-credit course.

There are 12 weeks in the semester.

Class starts January 30, 2017 and ends April 23, 2017. (The classes starting with 908 start on February 13 and end on May 7. These classes are referred to as GO2)

Please go to http://www.umuc.edu/students/calendar/graduate.cfm#gc-spring for additional calendar information.

February 5 is the last day to drop. February 19 for GO2 classes

March 24 is the last day to withdraw. April 7 for GO2 classes

Each week class begins on Monday and ends on Sunday at midnight Eastern Time. All assignments, projects, exams, and conferences are due on Sunday at midnight ET unless otherwise noted.

Course Outcomes

At the end of the course, students should be able to:

1. Recognize problems which are suitable for statistical resolution

2. Identify the appropriate data needed to analyze and solve a specific problem
3. Gather, analyze, and present statistical data using Excel

4. Become proficient at hypothesis development and testing to support decision making

5. Analyze and interpret descriptive (measures of central tendency and variability) statistical results

6. Apply and communicate sampling statistics to support decision making

7. Apply regression analysis to analyze and interpret the relationships between independent and dependent variables

Course Materials

Click to access your course materials information (http://webapps.umuc.edu/grcmBook/BPage.cfm?C=MGMT%20650&S=5021&Sem=2172)

Grading Information

Note: For all graded assignments/projects including Class Participation, students will be provided with written feedback and a numeric grade.

Grades will be determined as shown in the following assignment chart. Detailed descriptions of assignments are available below and in the course content area of the classroom. Due dates are detailed in the course schedule as well as the LEO calendar.

<table>
<thead>
<tr>
<th>Assignment/Project Title</th>
<th>Grading Scale</th>
<th>% of Overall Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation via discussions and timeliness of assignment submissions</td>
<td>100%</td>
<td>15%</td>
</tr>
<tr>
<td>Five Homework assignments - 10% each</td>
<td>100%</td>
<td>50%</td>
</tr>
<tr>
<td>Critical Article Review</td>
<td>100%</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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</tr>
</tbody>
</table>

Course Specific Grading Policies

Departmental Late Policy: Timely completion of all assignments is critical to student success in the Graduate School. You should take assignment deadlines seriously and plan in advance to allocate sufficient time to meet deadlines.

Instructors may at their sole discretion grant limited extensions of time for unexpected business, health or personal emergencies beyond the student’s control. In order to be granted such an extension, you must make the request in advance of the due date and support the request by a compelling rationale that would be fair to others in the class. The instructor may request documentation. Any such extension will be for a specific period, not to exceed one week.

For late submissions that have not been approved by the instructor the penalty will be a 5 percent reduction in the grade (on the hundred percent scale) for that assignment for each day that the assignment is late. No submissions will be accepted after grades have been posted for the class as a whole. There will be no extensions for the assignments due the last week of class.

Late submissions of time sensitive assignments.
Discussion Activity - A discussion activity is a time-delimited activity intended to promote active discussion of the course material among students as well as productive engagement between students and faculty on the principles and practices being introduced in the course. If you are unable to make the required postings to a discussion due to an unexpected business, health, or personal emergency beyond the student's control, you may request that the faculty member provide an alternative assignment. Such request should be made within one week of the missed discussion activity. You must support this request with a compelling rationale, indicating why such an action is justified. Faculty has discretion to grant or deny a request for an alternative assignment. Should such a request be granted, the faculty member will determine a submission due date. There will be no extensions of that due date. Failure to meet the due date will result in a zero for that week's discussion activity.

Other Time Sensitive Assignments – certain assignments in your class (such as some quizzes, tests, certain exercises) might be considered time sensitive. The maximum possible extension for such assignments will be 3 days.

Note: Encountering technical problems on a day when an assignment is due creates lots of stress. Practical tip: Students who plan to submit work a day in advance seem to have less difficulty.

Submitting Work: All submission times are made by at the end of the week they are assigned

(i.e., assignments given on Monday are due Sunday as11:59 P.M., U.S. Eastern Time, unless otherwise stated. All homework problems and the final are to be done using Excel.

Departmental Policy on Extra Credit: There is no "extra credit" available to students in this class, and you will not be able to redo assignments after they have been graded.

The Critical Review assignment should be done using Microsoft Word since it is a text product and does not involve any problem solving.

Homework/exams

There are five homework assignments and one final Exam. Problem sets 1, 2, and 4 will be completed using Excel. Download the problem set from the relevant week course content area, and submit individual homework assignments to your assignment folder. Problem sets 3 and 5 and the final exam are submitted directly in the classroom, under 'My Tools->Quizzes'. Each quiz will be available at the start of the relevant week.

It is the responsibility of the student, and the student alone, to ensure that assignments are submitted accurately and punctually to the classroom.

Academic Integrity Pledge

The Graduate School requires that all graduate students sign the Academic Integrity Pledge. Agreeing to the Academic Integrity Pledge will be your first assignment for this semester course. Students must sign (agree) to the pledge before they start working on other assignments in the course (e.g., homework assignments, quizzes, tests, etc.). The wording of the Academic Integrity Pledge is as follows and will be the same information provided in your first assignment:

By entering my name below, I pledge:

- I have reviewed and understand the academic integrity policy of the University of Maryland University College (https://www.umuc.edu/policies/academicpolicies/aa15025.cfm)
- Every assignment I complete for this course--paper, examination, report, project, discussion posting, etc.--will be my own work that I specifically create for this course and this section. Any research or material I use will be appropriately acknowledged within the assignment in accordance with the academic standards for complete and accurate citation of sources.

Original Work: All assignments and other graded work must be entirely each student's own work and original for this class. Submitting work prepared for other UMUC courses, or in the case of a student repeating this course, use of previously prepared papers or solutions sets from prior enrollments in this course is prohibited. The use of material obtained for this course from other students,
past or present (which includes receiving this material via intermediaries or third parties, including online question-answer sites i.e. Yahoo answers, Cramster, student of fortune, etc.), is prohibited. Students found to have tuned in an assignment that meets the above stated originality criteria risk receiving a grade of “0” for the assignment.

**Departmental Policy on Originality:** The work in this class must be your own and original to this course. Work prepared for other courses or use of material obtained from other students is expressly prohibited and can result in a grade of zero “0” for the assignment and/or course failure. Please refer to The Graduate School Academic Dishonesty and Plagiarism Policy (cited in your syllabus) for more information.

**Final Grades and Submission Policy:** Final grades will be changed only in the event of the instructor's error in computing the grade. There is no opportunity to resubmit any previously graded assignments.

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### Project Descriptions

The following assignments constitute the required course work for this class:

**Individual Class Participation (15% of course grade)**

LEO Forums and discussions will provide the primary focus for assessing class participation. Forum/discussion assignments may not be given every week; this will be decided by instructors within individual classes. Each student is expected to participate actively in discussing the issues and problems when they are raised in a weekly forum or discussion. Your instructor will post forum/discussion activities for class in selected weekly forums. Generally, student posts should be direct responses to the discussion topic or thoughtful responses to postings by other students. Additional participation credit is earned by submitting completed assignments on time (i.e., homework, quizzes, exams and other assigned products, readings or submissions). Your first assignment is to post an introduction in the Introductions Forum.

In this class, you are expected to participate in discussions using the Discussion Boards embedded within the Learning Management System (LMS) online classroom. As a replacement of the traditional in-class experience, discussion boards in an online environment enable classroom engagement, interaction and communication among students as well as with your professor.

**Homework (50% of course grade)**

There are five problem sets due at the end of given sessions as assigned in the Course Schedule. Problem sets 1, 2, and 4 are to be worked on using Microsoft Excel. Problem sets 3 and 5 are to be worked on through the classroom quizzes area.

Remember the purpose of the problem assignment is to encourage you to practice problems and to be in a position to ask questions and seek help from the Tutoring class or your Professor when you do not understand.

Those students who require additional practice should work with a tutor in the tutoring class STAT699 to practice similar problems.

**Critical Review of Published Article (15% of course grade)**

Each MGMT 650 student is required to complete a critical review of one research orientated journal article. The article will be selected by the instructor from peer-reviewed journals and assigned to you early in the beginning of the course. This critique should demonstrate effective communication skills and understanding of the use of the statistical methods in the reported research. The review should be written in a style that can be understood by non-statistician decision makers. The due date for the review can be found in the Course Schedule of the syllabus. The review should be created using word processing and other software programs to exhibit the student’s ability to prepare technology-enhanced documents and/or presentations.

The final critique will be due in the student’s LEO gradebook folder no later than 11:59PM Eastern Time on the date indicated in syllabus and grade book.

The paper must also include an abstract, introduction, body, conclusions, and references. The references must be in APA format. Please refer to the APA publication manual for additional help with APA formatting. The paper should also be approximately three to five pages in length excluding the header page, abstract, and references.
Final Exam (20% of course grade)

A comprehensive final examination will be given. Your instructor will provide you with specific instructions on how to take the exam. There may be different exams within a class. There will be no makeup exams unless for documented emergencies.

Academic Policies

Academic Policies and Guidelines

ACADEMIC INTEGRITY

As a member of the University of Maryland University College (UMUC) academic community that honors integrity and respect for others you are expected to maintain a high level of personal integrity in your academic work at all times. Your work should be original and must not be reused in other courses.

CLASSROOM CIVILITY

Students are expected to work together cooperatively, and treat fellow students and faculty with respect, showing professionalism and courtesy in all interactions. Please review the Code of Civility for more guidance on interacting in UMUC classrooms: https://www.umuc.edu/students/support/studentlife/conduct/code.cfm.

POLICIES AND PROCEDURES

UMUC is committed to ensuring that all individuals are treated equally according to Policy 040.30 Affirmative Action, Equal Opportunity, and Sexual Harassment (https://www.umuc.edu/policies/adminpolicies/admin04030.cfm).

Students with disabilities who need accommodations in a course are encouraged to contact the Office of Accessibility Services (OAS) at accessibilityservices@umuc.edu, or call 800-888-UMUC (8682) or 240-684-2287.

The following academic policies and procedures apply to this course and your studies at UMUC.

<table>
<thead>
<tr>
<th>Policy Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>150.25</td>
<td>Academic Dishonesty and Plagiarism (<a href="https://www.umuc.edu/policies/academicpolicies/aa15025.cfm">https://www.umuc.edu/policies/academicpolicies/aa15025.cfm</a>) – UMUC defines academic dishonesty as the failure to maintain academic integrity. All charges of academic dishonesty will be brought in accordance with this Policy.</td>
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<tr>
<td></td>
<td>Note: Your instructor may use Turnitin.com, an educational tool that helps identify and prevent plagiarism from Internet resources, by requiring you to submit assignments electronically. To learn more about the tool and options regarding the storage of your assignment in the Turnitin database go to: <a href="https://www.umuc.edu/library/libresources/turnitin.cfm">https://www.umuc.edu/library/libresources/turnitin.cfm</a>.</td>
</tr>
<tr>
<td>151.00</td>
<td>Code of Student Conduct (<a href="https://www.umuc.edu/policies/studentpolicies/stud15100.cfm">https://www.umuc.edu/policies/studentpolicies/stud15100.cfm</a>)</td>
</tr>
<tr>
<td>170.40</td>
<td>The following policies describe the requirements for the award of each degree:</td>
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<tr>
<td>170.41</td>
<td>Degree Completion Requirements for the Graduate School (<a href="https://www.umuc.edu/policies/academicpolicies/aa17040.cfm">https://www.umuc.edu/policies/academicpolicies/aa17040.cfm</a>)</td>
</tr>
<tr>
<td>170.42</td>
<td>Degree Completion Requirements for a Bachelor’s Degree (<a href="https://www.umuc.edu/policies/academicpolicies/aa17041.cfm">https://www.umuc.edu/policies/academicpolicies/aa17041.cfm</a>)</td>
</tr>
<tr>
<td>170.71</td>
<td>Degree Completion Requirements for an Associate’s Degree (<a href="https://www.umuc.edu/policies/academicpolicies/aa17042.cfm">https://www.umuc.edu/policies/academicpolicies/aa17042.cfm</a>)</td>
</tr>
<tr>
<td>170.71</td>
<td>Policy on Grade of Incomplete (<a href="https://www.umuc.edu/policies/academicpolicies/aa17071.cfm">https://www.umuc.edu/policies/academicpolicies/aa17071.cfm</a>) – The grade of I is exceptional and only considered for students who have completed 60% of their coursework with a grade of B or better for graduate courses or C or better for undergraduate courses and request an I before the end of the term.</td>
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</tbody>
</table>

Procedures for Review of Alleged Arbitrary and Capricious Grading (https://www.umuc.edu/policies/academicpolicies/aa13080.cfm) – appeals may be made on final course grades as described herein.

Calculation Of Grade-Point Average (GPA) for Inclusion on Transcripts and Transcript Requests (https://www.umuc.edu/policies/academicpolicies/aa20506.cfm) – Note: Undergraduate and Graduate Schools have different Grading Policies (i.e. The Graduate School does not award the grade of D). See Course Syllabus for Grading Policies.

GRADING

According to UMUC’s grading policy, the following marks are used:

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79*</td>
</tr>
<tr>
<td>D</td>
<td>60-69</td>
</tr>
<tr>
<td>F</td>
<td>59 or below</td>
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<tr>
<td>FN</td>
<td>Failure-Non attendance</td>
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<tr>
<td>G</td>
<td>Grade Pending</td>
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<td>P</td>
<td>Passing</td>
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<td>S</td>
<td>Satisfactory</td>
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<td>U</td>
<td>Unsatisfactory</td>
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<td>I</td>
<td>Incomplete</td>
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<td>AU</td>
<td>Audit</td>
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<td>W</td>
<td>Withdrew</td>
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</table>

* The grade of "B" represents the benchmark for The Graduate School. Students must maintain a Grade Point Average (GPA) of 3.0 or higher. Classes where final grade of C or F places a student on Academic Probation must be repeated.
** The Graduate School does not award the grade of D.

COURSE EVALUATION SURVEY

UMUC values its students’ feedback. You will be asked to complete an online evaluation toward the end of the term. The primary purpose of this evaluation process is to assess the effectiveness of classroom instruction in order to provide the best learning experience possible and make continuous improvements to every class. Responses are kept confidential. Please take full advantage of this opportunity to provide your feedback.

LIBRARY SUPPORT

Extensive library resources and services are available online, 24 hours a day, seven days a week at https://www.umuc.edu/library/index.cfm (https://www.umuc.edu/library/index.cfm) to support you in your studies. The UMUC Library provides research assistance in creating search strategies, selecting relevant databases, and evaluating and citing resources in a variety of formats via its Ask a Librarian service at https://www.umuc.edu/library/libask/index.cfm
LEARNING MANAGEMENT SYSTEM SUPPORT

To successfully navigate the online classroom new students are encouraged to view the Classroom Walkthrough under Help in the upper right menu of the LEO classroom. Those requiring technical assistance can access Help@UMUC Support directly in LEO under the Help menu. Additional technical support is available 24 hours a day, seven days a week via self-help and live chat at https://www.umuc.edu/help or by phone toll-free at 888-360-UMUC (8682).

SYLLABUS CHANGES

All items on this syllabus are subject to change at the discretion of the Instructor and the Office of Academic Affairs.

Class & Assignment Schedule

UNIVERSITY OF MARYLAND UNIVERSITY COLLEGE

THE GRADUATE SCHOOL

MGMT650

Business Statistics

Weekly Schedule

Spring 2017

Boundless.com provides free textbooks on various subjects. The statistics textbook is very helpful for our class. We have collected for you a list of links relevant for each week. You can access all these links free of charge. You can browse anonymously and see some ads, or you may register on the site and that will remove some of the ads.

Please let us know if you find this helpful.

Please check the listing in the week 1 Course Content Area.

<table>
<thead>
<tr>
<th>Week</th>
<th>Reading and Assignments</th>
</tr>
</thead>
</table>

7 of 16
<table>
<thead>
<tr>
<th>Reading:</th>
<th>Questionnaire Design and Interviews, Experimental Methods and Designs <a href="http://www.socialresearchmethods.net/kb/design.php">http://www.socialresearchmethods.net/kb/design.php</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments:</td>
<td><strong>Forum/Discussion Activity:</strong> The class discusses the study questions posted in the week 1 discussion forum in the learning management system classroom. Each student is expected to post at least twice during the week. At least one should be an original post and at least one post should be a response to a classmate’s post. Responses should be meaningful. Avoid responses such as “Great job”, “I agree with you” etc.</td>
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<tr>
<td></td>
<td><strong>Reminders and Deliverables:</strong> Review Excel Skills! Make sure you have the data analysis add-in enabled in your Excel software. Details on this can be found in the course content area, week 1. Post your introduction to the Introductions Forum Confirm and Submit Academic Integrity Pledge to assignment folder. You must submit this first before any other assignments will be graded.</td>
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<tr>
<td>Week 2</td>
<td>Reading:</td>
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</tr>
<tr>
<td>Monday – Sunday</td>
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<tr>
<td>2. February 6 – 12</td>
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<tr>
<td><strong>Topic:</strong> Calculating and Displaying Descriptive Statistics</td>
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</tbody>
</table>

**Basic Descriptive Statistics**
http://www.stats.gla.ac.uk/steps/glossary/presenting_data.html

**Basic Stat Terms: Mean, Standard Deviation, Variance in Excel**
https://www.youtube.com/watch?v=efdRmGqCYBk

**Coefficient of Variation**
https://www.youtube.com/watch?v=XXngxFm_d5c

**Graphical Methods for Describing Quantitative Data**
http://www.stats.gla.ac.uk/steps/glossary/presenting_data.html

**Frequency Tables and Distributions**
http://www.mathsisfun.com/data/frequency-distribution.html
https://www.youtube.com/watch?v=amLYLq73RvE
http://www.socscistatistics.com/descriptive/histograms/

**Measures of Central Tendency**

**Measures of Dispersion**
http://www.mathsrevision.net/advanced-level-maths-revision/statistics/measures-dispersion

**Graphical Depictions- box plots, stem and leaf**
http://www.purplemath.com/modules/boxwhisk.htm
http://www.purplemath.com/modules/stemleaf.htm

**Microsoft Excel Basics**
http://www.chem.utoronto.ca/coursenotes/analsci/stats/ExcelBasics.html

**Assignments:**
Complete Problem Set 1. Find the problem set in the course content area, under week 2
Note: All Deliverables that are DUE THIS WEEK should be submitted to your assignment folder by Sunday 11:59PM
<table>
<thead>
<tr>
<th>Week 3</th>
<th>Reading:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday – Sunday</td>
<td>Introduction to Probability</td>
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<tr>
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<td>Events and Sample Spaces</td>
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<tr>
<td></td>
<td><a href="http://www.math.uiuc.edu/~kkirkpat/SampleSpace.pdf">http://www.math.uiuc.edu/~kkirkpat/SampleSpace.pdf</a></td>
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<td></td>
<td>Simple Probability</td>
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<td><a href="https://www.youtube.com/watch?v=AY3O_qsSnBE">https://www.youtube.com/watch?v=AY3O_qsSnBE</a></td>
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<tr>
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<td>Joint Probability</td>
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<td><a href="https://www.youtube.com/watch?v=crSggPmiUiA">https://www.youtube.com/watch?v=crSggPmiUiA</a></td>
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<td></td>
<td>General Addition Rule</td>
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<td><a href="https://www.youtube.com/watch?v=QE2uR6Z-NcU">https://www.youtube.com/watch?v=QE2uR6Z-NcU</a></td>
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<td>Conditional Probability: Computing Conditional Probabilities</td>
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<td><a href="https://www.youtube.com/watch?v=H02B3aMNKzEhttps://people.richland.edu/james/lecture/m170/ch05-rul.html">https://www.youtube.com/watch?v=H02B3aMNKzEhttps://people.richland.edu/james/lecture/m170/ch05-rul.html</a></td>
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<tr>
<td></td>
<td>Statistical Independence</td>
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<td><a href="http://www.princeton.edu/~achaney/tmve/wiki100k/docs/Statistical_independence.html">http://www.princeton.edu/~achaney/tmve/wiki100k/docs/Statistical_independence.html</a></td>
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<tr>
<td></td>
<td>Multiplication Rules</td>
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<td></td>
<td>Marginal Probability using the General Multiplication Rule</td>
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<td></td>
<td><a href="http://sites.nicholas.duke.edu/statsreview/probability/jmc/">http://sites.nicholas.duke.edu/statsreview/probability/jmc/</a></td>
</tr>
<tr>
<td>Assignments:</td>
<td>Forum/Discussion Activity:</td>
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</tbody>
</table>
|  | The class discusses the study questions posted in the week 3 discussion forum in the learning management system classroom. Each student is expected to post at least twice during the week. At least one should be an original post and at least one post should be a response to a classmate’s post. Responses should be meaningful.
<table>
<thead>
<tr>
<th>Week 4</th>
<th>Week 5</th>
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<tbody>
<tr>
<td>Monday – Sunday</td>
<td>Monday – Sunday</td>
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<tr>
<td>4. February 20 – 26</td>
<td>5. February 27 – March 5</td>
</tr>
<tr>
<td><strong>Topic:</strong></td>
<td><strong>Topic:</strong></td>
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<tr>
<td>Discrete Probability</td>
<td>Sampling and Sampling</td>
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<td>Distributions and</td>
<td>Distributions</td>
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<tr>
<td>Continuous Probability</td>
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<tr>
<td>Distributions</td>
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</tbody>
</table>

**Reading:**
- Statistics for Probability: Random Variables
- Continuous Random Variables
- Elements of Probability and Random Variables
- Normal Distribution

**Assignment:**
Complete Problem Set 2. Find the problem set in the course content area, under week 4
Note: All Deliverables that are DUE THIS WEEK should be submitted to your assignment folder by Sunday 11:59PM

**Reading:**
- Data, Sampling, and Variation in Data and Sampling
- Central limit theorem
  - http://www.math.uah.edu/stat/sample/CLT.html
- Sampling Distribution
- Basic Inferential Statistics

**Assignments:**
- Forum/Discussion Activity:
  The class discusses the study questions posted in the week 5 discussion forum in the learning management system classroom. Each student is expected to post at least twice during the week. At least one should be an original post and at least one post should be a response to a classmate’s post. Responses should be meaningful.
Week 6
Monday – Sunday
6. March 6 – 12

Topic: Confidence Intervals

Reading:
Confidence interval for a population proportion
http://www.peoi.org/Courses/Coursesen/statcoll/ch/ch8c.html

Confidence interval, single population mean, standard deviation unknown

Confidence interval of difference of means

Confidence limits for the mean

Confidence Interval Estimation

Assignment:
Complete Problem Set 3. Find the problem set in the class quizzes area. The quiz will be available at the start of week 6 (Midnight Sunday)

Note: All Deliverables that are DUE THIS WEEK should be submitted to your assignment folder by Sunday 11:59PM
| **Week 7**  
| **Monday – Sunday**  
| **7. March 13 – 19**  
| **Topic:**  
| **Hypothesis Testing for a Single Population**  
| **Reading:**  
| **Hypothesis Testing Fundamentals**  
| http://www.socialresearchmethods.net/kb/hypothes.php  
| **Statistical T Test**  
| **Paired data t test**  
| https://www.youtube.com/watch?v=LgheG4PnQzA&feature=youtu.be  
| **HyperStat Online Statistics Textbook**  
| http://davidmlane.com/hyperstat/index.html  
| **StatSoft - Electronic Textbook** Contains information on univariate and multivariate statistics  
| http://www.statsoft.com/textbook/stathome.html  
| Stockburger, D. (2001). Introductory statistics: Concepts, models and applications. Cincinnati, OH: Atomic Dog Publishing. The online version of this book is labeled Stockburger(I) and can be found at:  
| http://www.psychstat.missouristate.edu/introbook/sbk00.htm  
| http://www.graphpad.com/guides/prism/6/statistics/  
| **Hypothesis Testing - Testing population proportions**  
| **Testing Hypotheses**  
| **Basic Concepts of Inference (null Hypothesis)**  
| **Basic Concepts of Inference (Mean Squared Error)**  
| **Assignments:**  
| **Forum/Discussion Activity:**  
| The class discusses the study questions posted in the week 7 discussion forum in the learning management system classroom. Each student is expected to post at least twice during the week. At least one should be an original post and at least one post should be a response to a classmate’s post. Responses should be meaningful.
| Week 8 | Topic:  
8. March 20 – 26  
Hypothesis Tests Comparing Two Populations | Reading:  
Hypothesis testing, two means, paired data, two proportions  
Comparing two independent population means with unknown population standard deviation  
Two Sample Hypothesis Testing  
Comparing Two Population Means  
https://onlinecourses.science.psu.edu/stat500/node/48 | Assignment:  
Complete Problem Set 4. Find the problem set in the course content area, under week 8  
Note: All Deliverables that are DUE THIS WEEK should be submitted to your assignment folder by Sunday 11:59PM |
|---|---|---|
| Week 9 | Topic:  
9. March 27 – April 2  
Analysis of variance | Reading:  
Introduction to ANOVA  
http://www.statsoft.com/Textbook/ANOVA-MANOVA  
http://davidmlane.com/hyperstat/intro_ANOVA.html  
One Way ANOVA (parts 1 and 2)  
Forum/Discussion Activity:  
The class discusses the study questions posted in the week 9 discussion forum in the learning management system classroom. Each student is expected to post at least twice during the week. At least one should be an original post and at least one post should be a response to a classmate’s post. Responses should be meaningful. |
| Week 10  
| Monday – Sunday  
| 10. April 3 – 9  
| Topic:  
| Chi-Square Tests and Hypothesis Tests for the Population Variance  
| **Reading:**  
| Chi-Square Introduction  
http://davidmlane.com/hyperstat/chi_square.html  
https://www.youtube.com/watch?v=WXPBoFDqNVk  
https://www.youtube.com/watch?v=2QeDRxsSF9M  
| Testing for goodness of fit using chi-square exercises  
| Evaluating goodness of fit for a distribution  
| Chi square test for two way tables  
| Chi square test stat  
| Finding p value for chi square distribution  
| **Assignment:**  
| The article for the critical review assignment, due at the end of week 10, is:  
Note: All Deliverables that are DUE THIS WEEK should be submitted to your assignment folder by Sunday 11:59PM  
|
### Week 11
**Monday – Sunday**
11. April 10 – 16

**Topic:**
Correlation and Simple Regression Analysis

**Reading:**
- Linear regression and correlation
- Intro to line fitting, residuals, and correlation
- Inference in Simple Linear Regression
  http://statwiki.ucdavis.edu/Regression_Analysis/Inference_in_Simple_Linear_Regression
- Inference for Regression
  http://open.umich.edu/sites/default/files/13-w11-stats250-bgunderson-chapter-14-inference-for-regression-lecture.ppt
  https://www.youtube.com/watch?v=GAmzwIkGFgE
- Simulation covering Multiple regression model building, hypothesis testing (one-tailed and two-tailed Z tests), and Chi-square test.

**Assignment:**
Complete Problem Set 5. Find the problem set in the class quizzes area. The quiz will be available at the start of week 11 (Midnight Sunday)
Note: All Deliverables that are DUE THIS WEEK should be submitted to your assignment folder by Sunday 11:59PM

### Week 12
**12. April 17 - 23**

**Topic:** Final Exam

**Assignments:**
- **Final Exam:** Post your exam in your assignment folder no later than SUNDAY 11:59 PM EST.