Course Overview
This course prepares you to think analytically about data to meet the demands of the new big data world. Specifically, the course examines statistical methods (regression, causal inference strategies, classification algorithms), and utilizes programming with Python to turn data into relevant and actionable managerial insights. While the nature of data analytics is highly mathematical, this course focuses on practical applications of various data science and machine learning techniques you can use in marketing.

Learning Objectives
- Explain the terminology and tools of data analytics
- Understand the processes and techniques of data mining, analysis, and visualization
- Apply the practical tools and techniques of data analytics
- Evaluate the output of data mining for decisions and practical applications
- Build a foundation for learning programming for data analytics using Python

Co-Requisite
MKT3331A, the companion lab to this course, must be taken concurrently.

Required Textbook
*Data Mining for Business Analytics: Concepts, Techniques and Applications in Python*
by Galit Shmueli, Peter C. Bruce, Peter Gedeck, and Nitin R. Patel  (ISBN: 978-1-119-54984-0)

Required Software
- Microsoft Excel
- Jupyter Notebook (Installation instructions will be given in the first week of class.)
Required Material
1. Access to email – make sure that the email listed in Blackboard is one you actually check. All announcements will be posted on Blackboard and sent via email. You are responsible for checking for updates and your emails for announcements.
2. Access to computer to develop and test Python programs.

Course Requirements / Graded Items

Exams
- There will be two mid-term exams and a final. All exams are take-home, submitted via Blackboard. The exam questions will be posted on Blackboard one week prior to the exam due date. The chapters to be covered in the exams are specified in the Schedule (p.4) and in case we need to make any changes, will be posted via Blackboard announcement.
- You have to do exams on your own. No cheating, sharing, emailing, posting or collaborating during exams. This is very easy to detect online through your digital footprints, so don’t try anything of the sort. Any such activity on your part will result in an F in the course or worse (see p.3, Scholastic Integrity).
- There will be NO makeup exams under any circumstances. If you miss an exam and have a valid, legitimate, documented, non-academic reason, you must contact me by email BEFORE the exam starts. If you contact me AFTER the exam, it is considered missing the exam.
- Exam grades will be posted on Blackboard. All regrade requests must be submitted within one week of the day the exam grade is posted on blackboard. After the one-week window, your grade for that exam is permanent.

Final Exam
The final exam will be comprehensive covering all chapters covered for the course, but with an emphasis on recent material. It can be a combination of coding problems, short questions, multiple-choice questions, and case studies.

Grading Policy
All the total points you earn will get converted to percent, using the weights: mid-term exams: 60%, and final exam 40%. Course grading scale is shown below. All exams should be completed and submitted as required to be eligible for a final passing grade. Incompletes will be dealt as per university polices attached. A grade of ‘F’ will be given when the university police on incompletes is not satisfied.

Decimal points for all exams are carried over and cumulated. To calculate final grades, 0.49 and under are rounded down, and 0.50 above are rounded up.

Course Breakdown

<table>
<thead>
<tr>
<th>MKT3330</th>
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<tbody>
<tr>
<td>Mid-term exams</td>
<td>60%</td>
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<tr>
<td>Final exam</td>
<td>40%</td>
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Grading Scale

<table>
<thead>
<tr>
<th>Course Grade</th>
<th>% Earned</th>
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<tbody>
<tr>
<td>A</td>
<td>&gt;=90%</td>
</tr>
<tr>
<td>B</td>
<td>&gt;=80% but &lt;90%</td>
</tr>
<tr>
<td>C</td>
<td>&gt;=70% but &lt;80%</td>
</tr>
<tr>
<td>D</td>
<td>&gt;=60% but &lt;70%</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60%</td>
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Expectations

- An online course requires a great deal of organization and discipline on your part. The students who do well are those who are self-motivated, organized, and consistent in their daily work.
- Please email me ASAP if you’re having any difficulty that hampers your progress in the course. Since I don’t meet you face-to-face, I have no way of knowing about these, unless you reach out. If you have doubts or questions pertaining to the course, you can always email me.
- If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!
- Academic dishonesty (e.g., plagiarism, cheating on exams) will be dealt with very harshly. You will automatically get an F in the class, at the least.

Scholastic Integrity

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student or possessing unauthorized materials during a test. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

Statement on Disability

If you feel that you may have a disability that requires accommodations, contact the Center for Accommodations and Support Services office at 915-747-5148, or email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

Incomplete Grade Policy

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Please email me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

Copyright Statement for Course Materials

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.
## Combined Course Schedule (subject to change at the discretion of the Instructor)

<table>
<thead>
<tr>
<th>Week</th>
<th>Beginning</th>
<th>Lecture Topics</th>
<th>Reading / Homework</th>
</tr>
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</table>
| 1    | Aug. 24th | Syllabus Overview  
Introduction to Course | Chapter 1  
Install Jupyter Notebook |
| 2    | Aug. 31st | Overview of the Data Mining Process (Part I) | Chapter 2  
Homework 1 (Deadline: 11:59 PM, Sunday, Sept. 6th) |
| 3    | Sept. 7th | Overview of the Data Mining Process (Part II)  
Data Visualization (Part I) | Chapters 2 and 3  
Homework 2 (Deadline: 11:59 PM, Sunday, Sept. 13th) |
| 4    | Sept. 14th | Data Visualization (Part II) | Chapter 3 |
| 5    | Sept. 21st | Dimension Reduction | Chapter 4  
Homework 3 (Deadline: 11:59 PM, Sunday, Sept. 27th) |
| 6    | Sept. 28th | Mid-Term Exam 1 (Chapters 1, 2, 3, and 4)  
Begins: 12:00 AM, Monday Sept. 28th  
Ends: 11:59 PM, Sunday Oct. 4th | |
| 7    | Oct. 5th  | Evaluating Predictive Performance | Chapter 5 |
| 8    | Oct. 12th | Multiple Linear Regression | Chapter 6  
Homework 4 (Deadline: 11:59 PM, Sunday, Oct. 18th) |
| 9    | Oct. 19th | k-Nearest Neighbors (k-NN) | Chapter 7  
Homework 5 (Deadline: 11:59 PM, Sunday, Oct. 25th) |
| 10   | Oct. 26th | Mid-Term Exam 2 (Chapters 5, 6, and 7)  
Begins: 12:00 AM, Monday Oct. 26th  
Ends: 11:59 PM, Sunday Nov. 1st | |
| 11   | Nov. 2nd  | The Naïve Bayes Classifier | Chapter 8 |
| 12   | Nov. 9th  | Classification and Regression Trees (Part I) | Chapter 9  
Homework 6 (Deadline: 11:59 PM, Sunday, Nov. 15th) |
| 13   | Nov. 16th | Classification and Regression Trees (Part II) | Chapter 9 |
| 14   | Nov. 23rd | Logistic Regression | Chapter 10 |
| 15   | Nov. 30th | Course Revision | Homework 7 (Deadline: 11:59 PM, Sunday, Dec. 6th) |
| 16   | Dec. 7th  | Final Exam (All chapters)  
Begins: 12:00 AM, Saturday Dec. 5th  
Ends: 11:59 PM, Friday Dec. 11th | |

* All times are Mountain Time.