Course Syllabus
MIS 3210 003/350 – Critical Thinking Using Analytics
Spring Semester, 2021
3.0 Credit Hours

Instructor Information
Name: Ali M Adeli, Ph.D.
Email: amadeli@memphis.edu
Office: FCBE #373
Office Hours: TWR by appointment

Course Information
Meeting Times: TR 1:00 – 2:25 pm
Meeting Location: FCB 373 and online (Zoom)
Meeting Dates: Jan 19 – May 6, 2021

Course Overview:
This is a general introduction to the tools and methods used in Business analytics. We focus on the development of critical thinking skills using in-depth assignments that utilize various data analysis techniques.

Pre-Requisites/Co-Requisites:
This is an upper-division required course for all FCBE majors. Lower division core courses must be completed before enrollment in this course is permitted.

Course Objectives:
Once you have completed this course, you should be able to demonstrate the following knowledge, skills, & abilities:

- Use critical thinking and other higher-order thinking skills to identify areas of inquiry that have the highest potential to derive new knowledge and actionable insights for a business organization.
- Explain the role of big data analytics in the inquiry process.
- Provide a basic explanation of specific big data analytics techniques such as trend analysis, association analysis, and prediction.
- Conduct specific types of data analyses using computer-based tools such as Excel, Access, and Tableau.

Basis for course objectives:
The objectives for this course were formulated by a team of faculty in the BIT department and are based upon a significant amount of input from business executives, industry experts, other FCBE faculty, and business school accreditation guidelines (AACSB). The specific topics covered in this course are based upon the current and projected demand for job skills that employers will need to achieve the strategic goals of their organizations.
Required Texts (and Related Materials):

Computer & Software:
This course requires the use of a computer and specific software programs. To complete some of the assignments, you will need access to a computer that can access specific software programs: Microsoft Excel, Microsoft Access, and Tableau. If you are taking this class online or you just prefer to use your own computer, here are the options for accessing these programs:

- **Microsoft Excel** is part of the Microsoft Office software suite – for both the PC or MAC. U of M students may install Microsoft Office on a PC or MAC by following the instructions here: [GetOffice](#).
- **Microsoft Access** is part of the Microsoft Office software suite – for the PC - but not the MAC. MAC users may access the U of M cloud version of Access by following the instructions here: [Instructions for UofM apps](#).
- **Tableau** (a data visualization program) is not a Microsoft product. Instructions for how to install and/or activate Tableau on your personal machine or virtual lab will be provided on elearn. Tableau is installed on Lab machines.
- **Weka** is an open-source software tool for various data mining activities. It can be downloaded [here](#).

All required software can be accessed on the UofM [virtual lab](#).

Reading Assignments:
All the outside reading material for this course is available online. The elearn [Content] page has links to all the weekly reading assignments.

- Readings may be journal articles or eBook chapters. Book chapters are assigned from this text: *Behind Every Good Decision: How Anyone Can Use Business Analytics to Turn Data Into Profitable Insight*, By Piyanka Jain and Lakshmi Jayaraman. Published by AMACOM, 2015. Links to the eBook chapters are available at [Business Analytics Text Book](#).

Fogelman College: Learning Outcomes for Your Degree
This course is designed to help you to meet the overall learning objectives for the BBA degree offered by the Fogelman College. The Fogelman College has established the following learning goals for all students successfully completing the BBA degree:

- Graduates will be effective communicators.
- Graduates will demonstrate critical thinking skills.
- Graduates will be knowledgeable about ethical factors in the business environment.
- Graduates will be knowledgeable about the global business environment.
- Graduates will be proficient users of business presentation and analysis technology.

Go to [https://www.memphis.edu/fcbeassessment/](https://www.memphis.edu/fcbeassessment/) for more information.

Course Methodology

- This course will implement a **Hybrid** teaching and learning model, which includes a mixture of independent, self-paced work supported through online learning tools and in-person activities involving your instructor and/or other students. The decision to work independently or in-person will be a function of the course activities combined with your individual needs. Some in-person work will be pre-planned and involve multiple students while others will be scheduled on an “as needed” basis with individual
students or small groups. This class will use a combination of virtual and in-person instruction and activities. Classroom location is subject to change.

- The instructional methodology of this course will use a flipped learning design.
  - Recorded Powerpoint presentations and Video instructions for hands-on activities will be posted on elearn; you should go over this material before online sessions and/or in-person meetings.
  - We will hold online Zoom (or Virtual classroom) sessions and/or in-person meetings to go over activities, elaborate on slides/lectures, and for discussions and Q&A.
  - Please **pay attention to emails and weekly elearn posts** where I announce **day/time of online meetings with Zoom links**.

- Quizzes and Activities have to be completed and submitted by the posted due dates on elearn.

**Covid-19 Notice**

Please refer to the [FCBE covid-19 page](#) for important information and updates.

- **All sessions will be virtual/remote for the first 2 weeks.**
- Students will be divided into groups to comply with reduced classroom capacity for potential in-person meetings. Details on groups and meeting schedules will be posted on elearn.
- Students are welcome to schedule individual zoom meetings throughout the day on Tue, Wed, and Thur.

**Grading and Evaluation Criteria:**

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

**Final Course Grades:**

Your final letter grade is based on your overall average. Your overall average is calculated as the sum of all the points you earned on graded assignments divided by the total number of points possible. The letter grade is based on the following schedule:

- Above 90% .................................................................................. A
- Above 80% but below 90% ......................................................... B
- Above 70% but below 80% ........................................................... C
- Above 60% but below 70% ......................................................... D
- Below 60% .................................................................................. F

Your overall grade for the semester is based on how well you perform on a mixture of formal activities. A detailed description of each of the assessed activities can be found in the scoring summary table below.

**Scoring Methodology Used to Determine Course Grade:**

Points earned on the assessed activities will be distributed as follows:

- 3 Homework Assignments (3x20) pts ................................................. 60 points
- 10 Quizzes (10x10) pts ..................................................................... 100 points
- 12 Class Activities (11 * 5 + 15) pts ................................................ 70 points
- Final Exam (compulsory) ................................................................. 50 points
- Honors Project (ONLY for honors section, sec 350) .................... 30 points
Total Possible for Semester ............................................................. 280 points
Total Possible for Semester (Honors section) ..................................... 310 points
**Course Schedule:**  
The schedule for online and in-person meetings will be posted on elearn a week in advance. Please see elearn for latest updates and make sure to check any emails you receive (MIS3210 will be in the subject line).

<table>
<thead>
<tr>
<th>Course by Week</th>
<th>Topic</th>
<th>Readings/Notes</th>
<th>HomeWork, ACTivity, Quiz</th>
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</thead>
</table>
| Week 1 Jan 19  | • Review Syllabus  
• Remote Access, Tools & Tech  
• PPT#0: Decision Making | • Readings #1&2: Chapters 1&2 BA text | • Accessing the virtual lab  
• Screen sharing  
• Remote access and troubleshooting |
| Week 2 Jan 25  | • PPT #1: Introducing Business Analytics  
• PPT #2: The BA Process -BADIR- (Includes ACT #1 instructions)  
• PPT #3: Excel Functions and Formulas (includes ACT#2 instructions) | • #3: Defining Business Problems  
• #4: BADIR framework  
• (Optional): Our minds can be hijacked... | • Quiz #1 (Over Course Syllabus and PPT#0)  
• ACT #1: Defining business questions  
• ACT #2: Excel Functions & Formulas |
| Week 3 Feb 1   | • PPT #3 continued  
• PPT #4: Database Concepts  
• PPT #5: Create Access Database (ACT #3 instructions) | • #5: When Data creates competitive advantage | • Quiz #2 (over PPT #1 and #2)  
• ACT #2: continued  
• ACT #3: Create Access Database |
| Week 4 Feb 8   | • PPT #6: Create Excel PivotTables (ACT #4 instructions)  
• PPT#7: Getting Started with HW #1 | | • Quiz #3 (over PPT #4 and #5)  
• ACT #4: Excel PivotTables  
• HW #1: Athlete’s Foot – create PivotTables, Dashboard |
| Week 5 Feb 15  | • PPT #8: Excel Charts & Dashboards (ACT #5)  
• PPT #10: Data Visualization | • #6: Designing Dashboards | • ACT #5: Create Excel Charts & Dashboard |
| Week 6 Feb 22  | • PPT #11: Using Tableau for Data Visualization (includes ACT #6 instructions)  
• PPT #12: Instructions for HW#2 | • #7: Tableau DataVizWiki  
• #8: Visual Analysis Guidebook | • Quiz #4 (over PPT #10 & Readings 6,7)  
• ACT #6: Using Tableau for Data Visualization |
| Week 7 Mar 1   | • PPT #13: Big Data technologies  
• PPT#13B: Misinformation & Disinformation in a Digital World  
• PPT #14: Data Mining Concepts | • #9: Big Data Analytics Tutorial | • HW #2: KPIs & creating a dashboard with Tableau |
| Week 8 Mar 10  | • PPT #15: Descriptive Analytics, Prediction Model (Regression), ACT #7 instructions | Chapter 5 BA text | • Quiz #5 (over PPT #13)  
• ACT #7: Descriptive Statistics and Regression (Excel)  
½ week
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| Week 9 Mar 15  | • PPT #16: Classification Models, Instructions for ACT #8  
                   • Instructions for HW#3: Precision and Recall Calculations | #10: Better ways to predict who is going to quit (HBR) | • Quiz #6 (over PPT #14 and #15)  
                   • ACT #8: Classification models with WEKA  
                   • HW#3 |
| Week 10 Mar 22 | • PPT #17: Clustering Techniques  
                   • PPT #18: Instructions for ACT #9, clustering with WEKA |  | • ACT #9: K-means clustering with WEKA  
                   • Quiz #7 (over PPT #16 and 17, and Reading #10) |
| Week 11 Mar 29 | • PPT #19: Association Rule Mining, instructions for ACT #10 |  | • ACT #10: Association Rule mining (with WEKA) |
| Week 12 Apr 5  | • PPT #20: Web & Social Media Analytics; Google Analytics activity |  | • Quiz #8 (PPT #18 and #19)  
                   • Activity #12: Google Analytics Certificate |
| ½ week         |       |                |                         |
| Week 13 Apr 12 | • PPT #21: Introduction to Text Analytics; Sentiment analysis (instructions for ACT#11) |  | • ACT #11: Text Mining on Hotel Reviews  
                   • Quiz #9 (over PPT#20 & #21) |
| Week 14 Apr 19 | • Continue PPT#21  
                   • Honors project presentations |  | • Quiz #10 (Practice Final) open |
| Week 15 Apr 26 | • Course review for final exam |  |                         |
| ½ week         |       |                |                         |
| Final Exam     | Thurs, May 6, 10:30-12:30 |  |                         |

- Activities and Homework must be completed and submitted by the posted due date on elearn.
- **Quizzes are open-book, open notes and have to be taken during the time they are open on elearn.**
- Only students who have received permission in advance will be permitted to make up an assignment or Quiz.

**Final Exam Schedule**
The final exam for this class will be on **Thursday, May 6** according to the [Registrar’s academic calendar website](http://example.edu). The exam will be on online; further details will be posted on elearn.
Professor’s Expectations of Students:

- Texting and talking on cell phones is not permitted during class time.
- Laptop computers are permitted in the classroom but should only be used for class-related purposes.
- All homework assignments are individual assignments, and each person is expected to create their own files and do their own work. **Collaboration on homework assignments is cheating.** If you turn in another student’s work as your own, you will receive a 0 on that assignment.
- You are expected to turn in assignments on time. The due dates for assignments will be posted on elearn. 1-2 point(s) will be deducted for each day that an assignment is late.

Student’s Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including well-organized and engaging learning experience, response to emails within two business days, and feedback on all work submitted within 7-10 calendar days.

Course Policies

**E-mail:**
All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. It is your responsibility to check your inbox frequently and read all email messages from the course instructor.

Please include “MIS3210” in the subject line when emailing me regarding this course.

**Attendance:**
This course is taught in a Hybrid model. Attendance is required for synchronous online sessions. There is no formal attendance for asynchronous sessions. When you sign-up for in-person meetings and/or office hours, you must inform the instructor ASAP if you are not able to attend a scheduled meeting. You are expected to stay active and engaged throughout the academic term and keep up with the schedule of activities. Your full engagement in the class begins on the first day of the semester and should be maintained until the last assignment is submitted.

**Academic Integrity:**
The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a “Solutions Manual” is considered cheating. Should your professor have evidence that using a “Solutions Manual” has occurred, he/she may take steps as described on the campus’ Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College’s Website on Academic Integrity (opens in new window).

**Classroom or Online Behavior:**
All participants in the course should be considerate of the other course participants and treat them with respect. The class will operate under the assumption that all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College’s Netiquette website (opens in new window).
Late Assignments:
Quizzes will be deactivated on the date and time they are due. Quizzes will not be re-opened for any student unless the student has a valid reason why they could not submit their quiz on time and an email request to the instructor to re-open the quiz. Assignments that are submitted to the dropbox should be uploaded by the due date. The dropbox will accept late submissions, however, 1-2 points may be deducted for each day that the assignment is late.

Syllabus Changes:
The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services
Please access the FCBE Student Services (opens in browser window) page for information about:
- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance