Course Syllabus
MIS 3210 002 – Critical Thinking Using Analytics
Fall Semester, 2020
3.0 Credit Hours

Instructor Information
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Office Hours: MTW by appointment

Course Information
Meeting Times: MWF 10:20 – 11:15 am
Meeting Location: FCB 373 and online (Zoom)
Meeting Dates: Aug 17 – Nov 17, 2020

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 you 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 sessions and/or in-person meetings to go over activities, elaborate on slides/lectures, and for discussions and Q&A.
  - Please pay attentions to emails and weekly elearn posts where I announce day/time of online meetings and the 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 30 days.
- Students will be divided into 3-4 groups to comply with reduced classroom capacity for potential in-person meetings once the campus reopens. Details on groups and meeting schedules will be posted on elearn and emailed to students.
- Students are welcome to schedule individual zoom meetings throughout the day on Mon, Tue, and Wed.

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:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>Above 90%</td>
<td>A</td>
</tr>
<tr>
<td>Above 80% but below 90%</td>
<td>B</td>
</tr>
<tr>
<td>Above 70% but below 80%</td>
<td>C</td>
</tr>
<tr>
<td>Above 60% but below 70%</td>
<td>D</td>
</tr>
<tr>
<td>Below 60%</td>
<td>F</td>
</tr>
</tbody>
</table>

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:

- 4 Homework Assignments (3x20+15) pts .......................................................... 75 points
- 10 Quizzes (10x10) pts .............................................................................. 100 points
- 12 Class Activities (11 * 5 + 15) pts ......................................................... 70 points
- Final Exam ...................................................................................................... 50 points

Total Possible for Semester ......................................................................... 295 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>
</tr>
</thead>
</table>
| Week 1 Aug 17  | • 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 Aug 24  | • 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 Aug 31  | • 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 Sep 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 |
| Week 5 Sep 14  | • PPT #8: Excel Charts & Dashboards (ACT #5)  
• PPT #9: Getting Started with HW#2 | • #6: Designing Dashboards | • ACT #5: Create Excel Charts & Dashboard  
• HW #2: Athlete’s Foot – create dashboard, final recommendation |
| Week 6 Sep 21  | • PPT #10: Data Visualization  
• PPT #11: Using Tableau for Data Visualization (includes ACT #6 instructions) | • #7: Tableau DataVizWiki  
• #8: Visual Analysis Guidebook | • Quiz #4 (over PPT #10 & Readings 6,7)  
• ACT #6: Using Tableau for Data Visualization |
| Week 7 Sep 28  | • PPT #12: Instructions for HW#3  
• PPT #13: Big Data technologies  
• PPT#13B: Misinformation in a Digital World and how to spot it | • #9: Big Data Analytics Tutorial | • HW #3: KPIs & creating a dashboard with Tableau |
| Week 8 Oct 5   | • PPT #14: Data Mining Concepts  
• 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) |
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| Week 9 Oct 12  | • PPT #16: Classification Models, Instructions for ACT #8  
• Instructions for HW#4: 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#4 |
| Week 10 Oct 19 | • 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 Oct 26 | • PPT #19: Association Rule Mining, instructions for ACT #10 | | • ACT #10: Association Rule mining (with WEKA) |
| Week 12 Nov 2  | • PPT #20: Web & Social Media Analytics; Google Analytics activity | | • Quiz #8 (PPT #18 and #19)  
• Activity #12: Google Analytics Certificate |
| Week 13 Nov 9  | • 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 Nov 16 | • Course review for final exam | | • Quiz #10 (Practice Final) open |
| Final Exam     | Fri, Nov 20 (tentative) | | |

- 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 **Friday, November 20** (tentatively) or scheduled according to the [Registrar’s academic calendar website](#). The exam will be on online; further details and final schedule 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 “MIS3210-002” 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