Course Syllabus
FCBE 3210-M50 – Critical Thinking using Analytics
Fall Semester, 2020
3.0 Credit Hours
(Last updated: 8/10/2020)

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Office Hours: As this is a fully online class, the standard means for communicating with the instructor is via course email throughout the semester. However, office hours will be held via Zoom on Tuesdays from 3pm to 4pm. Phone or video calls can be scheduled at other times, also.

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-level required course for all FCBE majors. Lower division core courses must be completed before enrollment in this course is permitted.

The 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.

**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.
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**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 Project 2016, 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** (a spreadsheet program) 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](#).
- **Tableau** (a data visualization program) is not a Microsoft product. There are three ways to access Tableau (either PC or MAC): (1) Install the 14-trial of the DESKTOP version on your PC or MAC, (2) Install the FREE PUBLIC version on your PC or MAC, (3) Use one of the PCs in FCB 373 or 377. [Instructions for installing Tableau TRIAL or PUBLIC version](#).
- **Weka** is an open-source software tool for all kinds of data mining activities. It can be downloaded [here](#).

**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.

- The business analytics readings may be either 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](#).
LOCATION OF COURSE MATERIALS:

This is a fully online course and all course materials (lectures, discussion topics, news, etc.) are located on the eCourseware website (opens in new window).

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/ for more information.

Course Methodology

This is an online course and much of the learning will be self-managed and self-paced. This has the benefit of accommodating each student’s unique schedule and learning style. Everything will be done fully online and asynchronously (meaning the class will not meet at specific times).

- The instructional methodology of this course will be a combination of PowerPoint presentations and video-led lab assignments using Microsoft Excel and Access, Tableau, and Weka.
- Quizzes and other activities will be assigned randomly. To receive credit for quizzes and activities, these assignments must be completed promptly before the due date (often within a few days of being assigned). No exceptions will be made unless the student has received PRIOR approval from the instructor.

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>Point Range</th>
<th>Assigned Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90.0-100 Points</td>
<td>A</td>
</tr>
<tr>
<td>80.0-89.99 Points</td>
<td>B</td>
</tr>
<tr>
<td>70.0-79.99 Points</td>
<td>C</td>
</tr>
<tr>
<td>60.0-69.99 Points</td>
<td>D</td>
</tr>
<tr>
<td>Under 60 Points</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 including discussions, quizzes, and projects. 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:

- 5 Homework Assignments (4x20 + 10 ) pts ........................................... 90 points
- 10 Quizzes (10x10) pts ................................................................. 100 points
- 12 Class Activities (11 * 5 + 15) pts ......................................................... 70 points
- Final Exam (1 * 60) pts ................................................ 60 points

**Total Possible for Semester ...............................................................320 points**

**Final Exam Schedule**

The final exam for this class will be scheduled according to the Registrar’s academic calendar website (opens in new window).

**Professor’s Expectations of Students:**

- In general, you should assist the instructor in creating a positive, supportive environment for learning by staying engaged in the course and actively participating in all online discussions.
- 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. If this occurs more than once, you will receive a failing grade for this course. Students who shared their work with others will receive a 0 on those assignments as well.

**Due Dates on Assignments**

- Unless otherwise noted, in-class activities, quizzes, and homework assignments are due on **Sundays at 11:59pm**. Homeworks must be turned in to their Dropbox folder. No assignments are accepted as email attachments. Please make your best effort to turn in assignments to their correct Dropbox folders.

**Late Assignments:**

- You are expected to turn in your assignments on time. The due dates for assignments are provided on the weekly schedule (above) and are posted on eLearn. One point may be deducted for each day that an assignment is late.
• Quizzes have due dates and shut down dates. The shut-down date is one week after the due date. However, quizzes must be completed by their due dates in order to be graded. If you miss a week, quizzes will be available for another week so that you may catch up on what you miss. If this is the case I still encourage you to take the quizzes you miss.

• Similar to quizzes, Dropbox folders for homework assignments have due dates and shut down dates. Dropbox folders will accept files for up to one week past their due dates. Assignments may not be accepted if they are turned in more than one week late.

• Do not turn in assignments as email attachments, please! No assignments turned in as an email attachment will be graded.

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 one business day, and feedback on all work submitted within 7-14 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. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a “full mailbox” condition, etc.) is the student’s responsibility.

Attendance:

Since this is an online class taught asynchronously, there are no scheduled meeting times. Thus, formal attendance will not be taken. However, 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. For students receiving federal student loans, any lack of engagement in the course may be treated as non-attendance and potentially impact access to student loans in the future.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar’s website (opens in new window).

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook in the section on Code of Student Rights & Responsibilities for information. 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).
Participation:
To be successful in this course as a student, you must stay active and involved throughout the entire semester. Students are expected to participate in all interactive aspects of the course. You should also regularly communicate with the instructor as part of your overall learning experience, check into the course frequently for announcements (usually on the course home page), and actively participate in threaded discussion events (both formal and informal). You should plan on logging into the course at least three times each week.

Classroom or Online Behavior:
All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and 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).

Extra Credit:
There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:
Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. Please do not wait until the last day to submit assignments or to take quizzes and exams. If an emergency should arise, it is the student’s responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met: (1) Extreme emergency and (2) Instructor contacted prior to the due date.

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 immediately 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 new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance
<table>
<thead>
<tr>
<th>Week #</th>
<th>Mon -- Sun</th>
<th>Video/PowerPoint to view</th>
<th>Reading</th>
<th>HW/Activity/Quiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week #1</td>
<td>8/17-8/23</td>
<td>1: Introducing Business Analytics</td>
<td>• SAS_defines_BA.pdf • Analytics 3.0.pdf (HBR) • Chapters 1-3 of BAText</td>
<td>Q1 (on course syllabus and learning objectives)</td>
</tr>
<tr>
<td>Week #2</td>
<td>8/24-8/30</td>
<td>2: The BA Process - BADIR - (Activity #1) 3: Excel Functions and Formulas (Activity #2)</td>
<td>• BADIR_framework.pdf • DefiningBusProblem.pdf</td>
<td>Q2 (over PPT #1 &amp; #2) A1: Defining the business question: Athletes Foot scenario A2: Excel Functions &amp; Formulas</td>
</tr>
<tr>
<td>Week #3</td>
<td>8/31-9/6</td>
<td>4: Database Concepts 5: Create Access Database (Activity #3)</td>
<td>-</td>
<td>Q3 (over PPT #4 and #5) A3: Create Access Database</td>
</tr>
<tr>
<td>Week #4</td>
<td>9/7-9/13</td>
<td>6: Create Excel PivotTables (Activity #4) 7: Getting Started w/ HW1</td>
<td>• PivotTableV1 • PivotChartV2</td>
<td>A4: Create Excel PivotTables HW1: Athlete’s Foot – create PivotTables</td>
</tr>
<tr>
<td>Week #5</td>
<td>9/14-9/20</td>
<td>8: Create Excel Charts &amp; Dashboards (Activity #5) 9: Getting Started w/ HW2</td>
<td>• DashboardV3</td>
<td>A5: Create Excel Charts &amp; Dashboard HW2: Athlete’s Foot: create dashboard &amp; final recommendation</td>
</tr>
<tr>
<td>Week #6</td>
<td>9/21-9/27</td>
<td>10: Data Visualization 11: Using Tableau (Activity #6)</td>
<td>• DataVizWiki.pdf • HBRdataViz.pdf • DesigningDashboards.pdf</td>
<td>Q4 (on PPT #10 &amp; readings) A6: Using Tableau for Data Visualization</td>
</tr>
<tr>
<td>Week #7</td>
<td>9/28-10/4</td>
<td>12: KPIs &amp; Getting Started w/ HW3 13: Big Data technologies</td>
<td>• Big Data Analytics: Concepts, Technologies, and Applications.pdf</td>
<td>HW3: KPIs &amp; creating a dashboard with Tableau</td>
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<tr>
<td>Week #8</td>
<td>10/5-10/11</td>
<td>14: Data Mining Concepts</td>
<td>Chapter 5 BA text</td>
<td>Q5 (on PPT #13 and readings)</td>
</tr>
<tr>
<td>Week #9</td>
<td>10/12-10/18</td>
<td>15: Descriptive &amp; Predictive Analytics (Activity #7) 16: Classification Models (Activity #8), HW4 Instructions</td>
<td>• Better ways to predict who is going to quit (HBR)</td>
<td>A7: Descriptive Statistics and Regression w/ Excel A8: Classification w/ WEKA HW4: Precision and Recall Calculations</td>
</tr>
<tr>
<td>Week #10</td>
<td>10/19-10/25</td>
<td>17: Clustering Techniques 18: clustering with WEKA (Activity #9)</td>
<td>-</td>
<td>Q6 (on PPT #14 &amp; #15) A9: K-means clustering w/ WEKA</td>
</tr>
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## Weekly Schedule (continued)

<table>
<thead>
<tr>
<th>Week #11</th>
<th>10/26-11/1</th>
<th>#19: Association Rule Mining (Activity #10)</th>
<th>Q7 (on PPT #16 to #18) A10: Association Rule mining w/ WEKA HW5: Association Rule Mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week #13</td>
<td>11/9-11/15</td>
<td>PPT #22: Introduction to Text Analytics #23: Sentiment Analysis on Hotel Reviews (Activity #11)</td>
<td>Q8 (on PPT #20 to #21) A11: Text Mining on Hotel Reviews</td>
</tr>
<tr>
<td>Week #14</td>
<td>11/16-11/22</td>
<td>#24: Final exam Review</td>
<td>Q9 (on PPT #22 to #23) Q10 (practice final)</td>
</tr>
<tr>
<td>Week #15</td>
<td>11/23-11/29</td>
<td>Final Exam Due</td>
<td></td>
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</table>