2019

Sample syllabus for teaching online Database Modeling and Management

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REQUIRED AND RECOMMENDED MATERIAL:

Mandatory Materials

1. Required text: Optimal Database Marketing, by Drozdenko and Drake, Sage Publications. ISBN-10: 0761923578 ISBN-13: 9780761923572, year 2002.
   - While this is an old book, the concepts presented are still relevant. We will be supplementing this book with up to date readings and simulations from the Harvard Business Review.
   - Available from Amazon.com or BarnesandNoble.com.
   - Also available as a free E-book from Sage Knowledge, via XXXX Home, with individual chapters downloadable in PDF format, as follows:
   - Log into home.XXXX.edu, navigate to the "Research" tab, and search by title or author's name

2. Note there is a mandatory simulation you must buy through HBS. If you don't buy the coursepack you cannot participate in the simulation If you don't participate you will lose 15% of your total grade. I will be able to see who has purchased and has not purchased the simulation.

3. EXCEL: Load and Learn How to use Stat Package (mandatory)
   - If not already part of your Excel, load in the Excel Stat Pack, if necessary. It might already be there
     a) Be sure you can run correlation, linear and multiple regression within EXCEL
     b) Note, you have to preload this stat package before you come to class. If you are having issues, please be in touch with Microsoft or the IT service desk to help you
     c) Review these videos prior to the second class on how to use Excel to generate a correlation, linear regression and multiple regression analysis, There are multiple videos covering the same subject from different trainers. Choose the one that is easiest for you to understand:
     d) Correlation/P value in Excel: https://youtu.be/zEXK6M93lb8
     e) Correlation/Regression P value in Excel: https://youtu.be/vFcxExzLfZI
     f) Correlation in Excel: https://youtu.be/wY4S6F2k8no
     g) Simple Linear Regression/Scatterplot/Correlation/Slope/Intercept: https://youtu.be/L_a8Z0BVjyM
     h) Multiple regression in Excel: https://youtu.be/L_a8Z0BVjyM
     i) Interpreting Multiple Regression Output in Excel: https://youtu.be/tlbdkgYz7FM

4. HubDB tool (optional for extra credit): https://designers.hubspot.com/docs/tools/hubdb
     a) We will be using HubDB as a way to learn how to build databases. While it is limited to 10,000 records, it will enable us to create multiple linked data tables, import and export data into and out of EXCEL. Hubspot also provides tutorials on how to use the product –

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which you are required to review and show proof that you finished the tutorials. Be my guest to get certified!!!!! It may help when you apply for an internship.
b) This is a free tool you can access through a free account. You will be learning and working on this package on your own. You will be required to submit proof of the completion of the assignment
c) If is an extra credit assignment that will be counted towards your homework grade. If you decide to do this assignment it is due July 31. See assignments for details

5. SQL Light (mandatory assignment): Writing an SQL query is becoming less of a chore; often we are given the query front end to ask questions of a database. That said, the SQL light query lesson from KHAN Academy will show you how to create simple SQL queries. I will not test you on SQL but you will be graded on showing proof that you finished the assignment. The lesson is easy and relatively short:
   - https://www.khanacademy.org/computing/computer-programming/sql/sql-basics/p/project-design-a-store-database

Optional Materials

Learning how to use SAS JMP; for those of you who would like an introduction to using a STAT program with an embedded data visualization tool, I recommend accessing SAS JMP through XXXX VCL. Its relatively easy to learn. For those of you who will be taking Business Analytics, this might be redundant. It's optional for you to learn on your own in this class.

I will not hold you accountable in this course to learn JMP, but for those of you who would like to experiment with the program, here are some excellent learning videos

JMP.com/teach. Start here:
   - https://www.jmp.com/en_us/learning-library/using-jmp.html
       o Click on Using JMP
       o Review videos Opening JMP, Importing Data from Excel and Importing Text Files
   - The first video you should see is found here under Graphical Displays and Summaries: https://www.jmp.com/en_us/learning-library/graphical-displays-and-summaries.html
       o Scroll down and learn AT LEAST scatter plots
   - The second videos you will teach you correlation, regression, and multi-linear analysis: https://www.jmp.com/en_us/learning-library.html
       o Then click on learning videos for Correlation and Regression
       o It will take you to this page: https://www.jmp.com/en_us/learning-library/correlation-and-regression.html

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        o   Review the learning videos for Correlation, Simple Linear Regression and Multiple Regression

Additional materials and exercises will be listed in the assignments section and described in each week's segment.

Grading will be assigned as follows:

INDIVIDUAL ASSIGNMENTS (in-class and homework)   10%
The professors will assign students homework, homework quizzes and discussion board threads to reinforce various database marketing and statistical concepts. Some of these assignments will be done individually while others will be done in groups.

CLASS PARTICIPATION   10%
It is expected that individual students will participate in online class discussions, presentations and class project. Students are expected to support their points of view with well thought out and substantiated answers. You are expected to be in class each week..

TEAM PROJECT   15%
Taking the learnings from the course, students will utilize statistical and database marketing tools to analyze a comprehensive dataset. The final project will be evaluated not only based on how and what tools are used, but also logical conclusions, recommendations and good business writing skills. Note that 50% of the grade will be a group grade/50% individual. To facilitate grading individuals, people will put their name on specific sections and on the PPT slides they created. A rubric will be provided. You will have to record your sections of the PPT as part of the submission

SIMULATION   15%
The simulation will act as an application of course learnings to solving a specific product issue. It will introduce sophisticated analytic techniques to understand current issues and determine the best strategy for improving performance. It will use analytics to cover a wide variety of tactics. You will have to develop PPTs for your submission. These can be recorded or you can annotate each slide in the box notes.

Midterm and Final   50%
Exam 1, Exam 2 and the Final provide an objective measure of how well students understand the various lessons. While primarily multiple choice, assessments will require students to solve statistical and mathematical problems and apply well thought our reasoning in order to select the correct answer. Midterm and Final will be averaged to determine the final overall test grade for the semester. They will all be weighted equally. Also, keep in mind that homework quiz grades will be part of the individual assignment grade, not the test and quizzes grades.

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COURSE OUTLINE:

Individual lesson detail and detailed information about each week's work and each week's assignment can be found in the "Lessons" section of the XXXX Classes Learning Management System.

Session 1 , Week of May 28, 2018 Introduction- Defining and Using Customer Data

Lectures found online

Assignments online

- Review syllabus and course objectives
- Student introductions
- What is database marketing
- Defining Customer Data Requirements
- Basic concepts and applications of marketing databases.
- Evaluating the feasibility of using databases in the marketing plan.
- The database as a strategic integrating element of an organization.
- The types of data needed to achieve marketing objectives.
- Internal and external data sources
- The characteristics of various external databases
- In class project – profiling clients – the kinds of information add-ons that tell us who is your customer
- Using Excel to create databases – Lets take a look at your resumes

Readings:

- Chapter 3 – Defining and Using Customer Data; Chapter 4 – Database Maintenance and Coding
- Read: Why you need to know the definition of data: https://en.wikipedia.org/wiki/Metadata

Homework (Submit all homework through Assignments page):

Due via XXXX Classes June 4

- Assignment 1A - Create a flat file database using Excel
  Must have 10 records with 5 fields each. Make up the information, or use your classmates; review this link to understand how to setup Excel:10
- http://spreadsheets.about.com/od/datamanagementinexcel/ss/excel_database.htm
- Due June 4

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- Assignment 1B: Watch webinar, write one page paper: summary and key points of webinar found at the following location: https://info.talend.com/en_bd_4steps_customerdata_actionable.html?type=productspage&_ga=_1.16115126.1448568951.1447907488

- Due June 4

- Assignment 1C- If you don't have the EXCEL stat pack load it by June 4

- Assignment 1D – SQL Light: the purpose of this is to understand how SQL works. Review this lesson: **SQL Light: The purpose of this is to understand how SQL works. Review this lesson:**
    - https://www.khanacademy.org/computing/computer-programming/sql/sql-basics/p/project-design-a-store-database
    - Submit 1 PPT slide to show that you have successfully completed an SQL query from the lesson. Due June 10 (take your time to do this). This is graded.

Sessions 2 and 3, Weeks of June 3 and June 10, Database Design
Online Via XXXX Classes

Topics
1. Basic Database Technology
2. Flat file databases vs. relational databases
3. Claritas and Zip Code Analysis
4. Database Maintenance and Coding
5. The importance of database maintenance
6. Data hygiene
7. NCOA processing
8. Which aspects of the marketing database need to be maintained and updated?
9. How records on the database are coded to monitor marketing programs
10. Provide an introduction on how technology is applied to marketing databases
11. Different types of hardware and software systems.
12. Advantages and disadvantages of database types
13. The organizational and cross-functional aspects of technology development.
14. The process of planning the database from a technical and applications perspective

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15. Matchkeys

Readings: "Optimal Database Marketing" textbook – Chapters 4, 5

Homework (Submit through Assignments page)

1) Assignment 2A - Create a matchkey for two addresses, submit via XXXX Classes in Assignments, Due: June 10th
2) Assignment 2B – Claritas and Zip Code Analysis- Due June 10
3) Quiz (graded as homework assignment, found under tests and quizzes), Chapters 4 and 5 due June 14
4) Discussion topic to be posted for week of June 3. You must comment and respond by June 12

Session 4, June 17th : Analyzing and Manipulating Customer Data
Online via XXXX Classes

Topics:

1. Sampling Methods
2. Creation of the Analysis Sample
3. Methods of Saving Point-in-Time Sample Data
4. Analysis and Validation Samples
5. Application of Analysis Findings
6. The Analysis Sample
7. What is a dataset and how do you find it
8. Simulation assigned

Readings: "Optimal Database Marketing" textbook – Chapters 6, 7

Homework (Submit through assignments page)
1) Assignment 4A - Identify a Zip code and analyze it using census and Claritas data: Due: June 10
2) Assignment 4B – Simulation Assigned in groups. Each week you will be responsible for writing a PPT with details about results. Rubric to be posted online. PPT Summary and analysis of rounds 1 and 2 due June 24

Session 5: Week of June 24th, Databases, Analytical Software, Entity Diagrams; Data Relationships

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Online via XXXX Classes

- Relational vs. Flat file database
- Entity Diagrams
- Database and analytical software
- Binary relationships
- Unary relationships
- Ternary relationships
- Entities
- Cardinality

Homework (Submit through Assignments page)

1. Assignment 5A –
   1. Create three tables for a proposed database using a unique customer ID that connects the various tables. Have at least 5 fields of information that you will capture across the top of the table and 5 records for each table: Due via XXXX Classes July 1
   2. Create an entity diagram for this database showing how the tables interconnect: Due via XXXX Classes July 1

2. Assignment 5B - Group Project Assigned: Proposals Due July 7 Via XXXX Classes
3. Assignment 5C PPT Simulation Rounds 3 and 4 due via XXXX Classes July 7
4. Topic to be posted on June 24th, thread finishes on July 1

Session 6 - Week of July 1, Learning how to do Correlation Analysis in Excel
Online via XXXX Classes

Topics

Learning about correlation and how to do correlation analysis in EXCEL

- Manipulating data
- Analyzing data
- How to setup correlation analysis in EXCEL
- What is a correlation analysis and how can you use it to analyze data

Homework (Submit through XXXX Classes Assignments page)

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- Assignment 6A: - Correlation Quiz (graded as a homework assignment) will be found under tests and quizzes; Due July 7
- Assignment 6B -- Simulation Final PPT results to be posted July 14th

<mark>Group Project Proposals: Due July 7^h</mark>, submit via XXXX classes

Session 7, Week of July 8, Simple Linear Regression

Online via XXXX Classes

Topics:

    An Introduction to Simple Linear Regression Modeling
    The Simple Linear Regression Model
    The Coefficient of Determination
    Statistical Background - Simple Linear Regression Analysis

Readings: "Optimal Database Marketing" textbook – Chapter 9
OTHER READINGS AND LEARNING ACTIVITIES:

Homework:

- **Assignment 7A -** Simple Linear Regression Quiz (graded as homework assignment) found under tests and quizzes
  <mark>**Due date: July 11th**</mark>
  Submit online

Midterm Opens from July 12th through July 15th
Session 8, Week of July 15th: Multiple Regression Analysis

 Lectures will be posted online

Topics

- Multiple Regression Modeling

- Defining Your Modeling Objective
- Preparing the Data to Build the Multiple Regression Model
- The Form of the Multiple Regression Model
- Model Interpretation
- Assumptions of the Model
- Regression Diagnostics
- Multiple Logistic Regression Models
- Best Customer or Clone Models
- Stepwise Regression Models
- Neural Networks
- Data Mining Software
- Gains charts

Readings: "Optimal Database Marketing" textbook – Chapter 10

Homework:

- **Assignment** 8 – MLR regression quiz graded as a homework assignment found under tests and quizzes. Due July 21
- **Discussion topic to be posted on July 15th, thread closes July 26**

Session 9: week of July 22: Segmentation
Lectures on XXXX Classes

Topics

- Segmenting the Customer Database
- The types of segmentation schemes
- Analysis techniques
- Univariate and cross-tabulation analysis
- Formal RFM analysis
- CHAID analysis
- Multivariate analysis
- Feeback and discussion on group project proposals

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Readings: "Optimal Database Marketing" textbook – Chapter 8
Group Project: Assigned

Homework

- Create customer segmentation model for your final project – Due July 28

Session 10, week of July 29

- **Marketing Databases and the Internet, Calculating Lifetime Value**

Online via XXXX Classes

Topics:
- Marketing Databases and the Internet
- Basic Internet Strategy.
- Database integration access DM media.
- Growth patterns for Internet marketing.
- Basic advantages and disadvantages of Internet Marketing.
- Communication options
- In-class discussion of group project work to-date

Readings: "Optimal Database Marketing" textbook – Chapter 15
OTHER READINGS AND LEARNING ACTIVITIES: Review article on database marketing:
http://www.marketing-schools.org/types-of-marketing/database-marketing.html

Homework

- Final group projects (PPT and Word Doc) due August 5

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Session 11, Week of August 9, Gains Charts,

Online Via XXXX Classes

Topics:

- Gains Charts
- Determining breakeven
- Expected Profit Calculations
- Building the Response Gains Chart
- Options When Lacking a Validation Sample
- In class discussion of group project work to date

Readings: "Optimal Database Marketing" textbook – Chapter 11

Homework

- Assignment 11 – GAINS Chart Quiz graded as a homework assignment found under tests and quizze – Due August 11

Session 12, August 12

Strategic Reporting, Breakeven, Expected Profit Calculations

Online Via XXXX Classes

Who is teaching: Josh Moritz
Who is evaluating Assignments: Josh Moritz

Key Active Customer Counts
List Vitality Customer Statistics
Key List Segment Counts and Statistics
Calculating Lifetime Value
LTV Profiles
Actual and Aggregate LTV Calculations
Sample Types Used in LTV Calculations
Forecasting LTV

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Impact Studies
Monitoring Promotional Intensity
Group Project Review

Readings: "Optimal Database Marketing" textbook – Chapter 12
OTHER READINGS AND LEARNING ACTIVITIES: Review Questions 1-6 in chapter

- **Final Exam**– *online* – Opens August 16th closes the night August 18th
  - You will have 2 hours to take the exam and must do it all at once. Once you close the exam it will be submitted
  - This is an individual effort

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