COURSE INFORMATION

Instructor: Professor Dai YAO  
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Email: bizyaod@nus.edu.sg  
Phone: (65) 6601 2109

Session: Semester II, 2014/2015  
Duration: Mon 12 Jan 2015 – Sat 3 May 2015

Teaching Assistant: Chuang Tang (MKT PhD Student, a0105026@u.nus.edu)

Office Hours: By appointment

<table>
<thead>
<tr>
<th>Section Number</th>
<th>U1 Class Time</th>
<th>U2 Class Time</th>
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<tbody>
<tr>
<td></td>
<td>Fri 11:00 - 14:00</td>
<td>Fri 17:00 - 20:00</td>
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<tr>
<td>Class Venue</td>
<td>BIZ 1, #02-04</td>
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COURSE DESCRIPTION & OBJECTIVES

To facilitate well-informed marketing analysis and decision making, marketing academics and practitioners have developed and implemented a large variety of analytic models and tools, which lay down the foundation for marketing decision making and oftentimes high-level strategic consultation. Equipped with these powerful tools, marketing professionals are in a better position to: (1) identify alternative business options and actions, (2) calibrate the opportunity cost associated with each option, and (3) choose one or more options that are most likely to help achieve the business goals. This course guides you through the use of these analytical methods and related software without getting trapped by the mathematics equations and it aims to build your skills and confidence in undertaking analytics for marketing decision making.

This course follows up on the marketing core course by operationalizing several critical marketing concepts such as segmentation, targeting, positioning, and marketing resource allocation. By completing this course, you will master the skills that companies increasingly desire for, such as using different ways to segment markets, understanding the data required for segmentation, identifying attractive customers to target, determining the best positioning of your brand in customers’ minds, and developing new products that add value to consumers and firms, among others.
The course is designed for students who have some background in quantitative methods (e.g., probability and statistics), and who are motivated to learn to build “smart” spreadsheets in Excel to conduct marketing analysis and decision making.

The course combines lectures, class discussion, software tools, cases, simulations, video presentations, assigned readings, open questions, as well as guest speakers, to ensure that it meets these objectives:

- To familiarize you with state-of-the-art analytical techniques and quantitative methods widely used in modern enterprises to enhance marketing analysis and decision making.
- To train you to translate a management problem into a feasible research question.
- To equip you with the software tools that will make you capable of applying the models and methods taught in classes to real specific marketing problems.
- To walk you through numerous scenarios and different contexts demonstrating the value of the analytic approach to marketing analysis and decision making.
- To train you to translate data analysis back into managerial insights to solve the business problem.
- To finally push you to an advanced level to think about marketing processes and view business relationships in a more systematic, analytical, and holistic way.

**REQUIRED STUDY MATERIALS**


*Marketing Engineering for Excel (MEXL)*. The software package accompanies the required book, and demonstrates the analytical marketing models discussed in the book.

* The textbook and software can be purchased as a bundle at a price of around US$40 (depending on the class size). However, each student will be subsidized with about US$10, so the bundle price is **SG$40** for everyone regardless of the class size. *See ANNEXURE I for the details on how to place your order.*
* Students who wish to purchase either the book or the software separately (or both) by themselves need to notify the TA ([a0105026@u.nus.edu](mailto:a0105026@u.nus.edu)) to obtain an access code to certify your status as a university student. No subsidy will be provided to those who want to purchase on their own.

**ASSESSMENT**

<table>
<thead>
<tr>
<th>Individual</th>
<th>Class participation</th>
<th>10%</th>
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<tbody>
<tr>
<td>Midterm exam</td>
<td>15%</td>
<td></td>
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<tr>
<td>Final exam</td>
<td>25%</td>
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</tbody>
</table>
Individual assignment 10%

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<tr>
<th>Group</th>
<th>Case analysis report 40%</th>
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**Class Participation (10%)**

Class participation accounts for 10% of the final grade, and is measured by class attendance and class contribution. Attendance accounts for half of this grade, thus for any absence you should notify the instructor ahead of time by email. Should you want to get the attendance point, you can briefly write (1/2 to 1 word page) your understanding of the reading materials for the session in your email. *If you skip any single class without the instructor’s approval, the whole class participation points are gone* (i.e., your best possible final grade now is 90%, instead of 100%). The other half will be used to award those who positively contribute to the class-learning environment, which includes not only answering the instructor’s questions but also asking relevant questions. General rules to maintain the quality of class participation:

- Participation means both speaking and listening. Your contribution will count for more if your opinions are built on those offered by others (including me) in the class.
- The purpose of class participation is learning. So, do not attempt to dominate the conversation.
- Assume that everyone is aware of the case facts. Do not repeat case information, unless you want to drive home a point. Try to ask interesting questions, or offer good examples and insights.
- Finally, don’t take things personally. Keep open-minded—be inquisitive and skeptical, but not dogmatic.

**Exams (15% + 25%)**

Both the midterm and the final exams are in-class, closed-book, closed-note, and account for 15% and 25% of your final grade respectively. *They are more like quizzes rather than exams.* The purpose is to assess your understanding of the basic materials covered in class to help you remember them and potentially apply them easily in your future career. Both will consist of multiple-choice questions, very simple calculations and very short essays. The midterm exam covers the materials up to session 6, while the final exam is more comprehensive and will emphasize more on the materials in the second half of the course.

**Individual Assignment (10%)**

Throughout the semester, the instructor will prepare and release about 10 questions that are closely related to the course materials as well as our daily life. The questions are supposed to be challenging, usually with no clear right or wrong answers. You need to answer 2 questions to be considered for this grade. You will have one week time¹ to work on a question and submit your answer either in a) 1-2 page summary, or b) less than 10 slides a powerpoint deck, or c) information graphics².

¹ A question is “alive” within a week since it is released. Please submit your answer during the period to the TA (a0105026@u.nus.edu). The idea is to not postpone anything to the end of the semester to make everyone suffer.

Good answers with sufficient depth and insights will be invited for short presentations in class and be awarded. Further, you are always encouraged to raise interesting questions (related to the course, and marketing in general). If any question is used by the instructor, the student will be awarded too.

Case Analysis Report (Group, 40%)
Each team is required to analyze the FOUR assigned cases and develop management recommendations. One team will ideally consist of 4 members, preferably with varying backgrounds (e.g., marketing, technology, or finance). You should form the teams before the second session (24 Jan 2015), and email the TA (a0105026@u.nus.edu) about the group composition. Your grade for the cases will be based on the instructor’s grade for each case, as well as a peer evaluation for each report.

For each case that we will discuss, your team is required to submit a written case report (send an electronic version to the TA and hand in a hard copy before the class starts) based on the case preparation questions the instructor will distribute. The report cannot be a Q&A for the questions; instead, it should reflect your thinking about the issues raised in the case. There is no standard format for the case reports; however, you should follow some basic guidelines:

- Start with an Executive Summary of about 1/4 to 1/3 page that clearly states your recommendation on the key decision(s) of the case. Typically, a case has 1 or 2 main decisions as well as some other secondary decisions which usually follow from the main decision(s). Your executive summary should focus on the main decision(s).
- The main body of the report should NOT exceed 4 pages (12 font size with 1.5 spacing).
- Annexure/Exhibits are separate. However, these should contain analysis that is directly relevant to your report.
- The main body of the report should be structured coherently so that you are building a case to support your recommendation strategy and/or reject alternative strategies.

COURSE POLICY

- In the classroom:
  - Respect everyone’s opinions.
  - Come to class on time. Habitual delays will be penalized.
  - Come to class prepared for participation in the discussions. Display a name sign in all lectures.
  - Switch off your mobile phones. Multi-tasking with your laptop or pad is not welcome and encouraged, and may result in penalty.
  - Do not pack up your notes until the class is dismissed.
- Outside the classroom:
  - Plagiarism is strictly prohibited. All assignments will be randomly submitted for plagiarism checks at www.turnitin.com by the instructor. See more details at: http://www.cit.nus.edu.sg/plagiarism-prevention/. Once identified, you will lose the corresponding grade (e.g., if you plagiarize in one case analysis report, the whole
team loses all the 40% and the best possible grade everyone in the team can get is 60%), and may be referred to the university for further disciplinary actions.
- The concepts and methods we learn in class will help you in a variety of situations. Please keep your eyes open for real applications that you can bring to the classroom.

OUTLINE OF LECTURES

<table>
<thead>
<tr>
<th>Session</th>
<th>DATE</th>
<th>CLASS TOPIC</th>
<th>WHAT’S DUE</th>
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<tbody>
<tr>
<td>Session 1</td>
<td>2015-01-16 Fri</td>
<td>Introduction</td>
<td>Purchase book &amp; software</td>
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<tr>
<td>Session 2</td>
<td>2015-01-24 Fri</td>
<td>Customer Perceptions</td>
<td>Form teams</td>
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<td>Session 3</td>
<td>2015-01-30 Fri</td>
<td>Customer Preference</td>
<td>Case report 1</td>
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<td>Session 4</td>
<td>2015-02-06 Fri</td>
<td>Customer Segmentation I</td>
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<td>Session 5</td>
<td>2015-02-13 Fri</td>
<td>Customer Segmentation II</td>
<td>Case report 2</td>
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<td>Session 6</td>
<td>2015-02-20 Fri</td>
<td>No class (CNY holiday)</td>
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<td>Session 7</td>
<td>2015-03-06 Fri</td>
<td>Mid-term Quiz &amp; Guest Lecture</td>
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<td>Session 8</td>
<td>2015-03-13 Fri</td>
<td>Customer Value Measurement I</td>
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<td>Session 9</td>
<td>2015-03-20 Fri</td>
<td>Customer Value Measurement II</td>
<td>Case report 3</td>
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<td>Session 10</td>
<td>2015-03-27 Fri</td>
<td>New Product Forecasting</td>
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<td>Session 11</td>
<td>2015-04-03 Fri</td>
<td>No class (Good Friday)</td>
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<td>Session 12</td>
<td>2015-04-10 Fri</td>
<td>Sales Promotion</td>
<td>Case report 4</td>
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<tr>
<td>Session 13</td>
<td>2015-04-17 Fri</td>
<td>Final Quiz &amp; Course Summary</td>
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More Details:
- Session 1A: Preview of MKT3421
  - From “qualitative” to “quantitative” marketing decision making
  - Why study marketing analytics/engineering?
  - Deliverables from MKT3421
- Session 1B: Framework & techniques for marketing engineering (Ch1^4)
  - Market response models and demand analysis
  - Individual-level response models
  - Overview of marketing engineering for Excel (MEXL) software
- Session 2A: Overview of understanding and measuring “customer value” (Ch2)
- Session 2B: Measuring consumer perceptions
  - Perceptual maps (Ch4)
- Session 3: Measuring consumer preference
  - Conjoint analysis (Ch6)
  - Case 1: Cumberland metal industries: Engineered products division - 1980

3 Detailed plan for each session with additional readings and cases will be provided approximately two weeks before each session.
4 Chapters refer to the chapter numbers of the required textbook “Principles of Marketing Engineering 2nd Edition”. You must read the assigned chapters before coming to class as we will discuss in-class problems and cases using concepts covered therein.
- Session 4: Consumer segmentation analysis I
  - Forming segments using cluster analysis (Ch3)
- Session 5: Consumer segmentation analysis II
  - Profiling segments using discriminant analysis (Ch3)
  - Case 2: Estimating demand for a new regional transport aircraft (B)
- Session 6A: Mid-term quiz (1.5 hours; closed book; closed notes)
- Session 6B: Guest lecturer (TBD)
- Session 7: Customer profitability/value measurement I (Ch2)
  - Individual-level customer lifetime value (CLV) models
- Session 8: Customer profitability/value measurement II
  - Customer segment base analysis
  - Case 3: Maru batting center: Customer lifetime value
- Session 9: New product forecasting models (Ch5)
  - Bass diffusion model
  - Pretest market forecasting and the ASSESSOR model
- Session 10: Sales promotion (Ch7)
  - Salesforce management
  - Sales resource allocation
  - Case 4: Giant consumer products sales promotion resource allocation
- Session 11A: Final quiz (1.5 hours; closed book; closed notes)
- Session 11B: Course summary (Ch8)

**DISCLAIMER**

The lecture topics, teaching materials, and evaluation procedures are subject to change in the event of extenuating circumstances. Such changes while not anticipated are possible. The instructor reserves the right to slightly alter anything in the syllabus at any time and for any reason.

**ANNEXURE I:**

**Details about the Textbook & Software**

Students are required to purchase the textbook and software for the course. While the price for the book is about US$30 and that for the software is US$45 for a 6 month license length (more for longer durations), the publisher is smart to offer a good premium package charged at around US$40 depending on the size of the class. Since every student registered to the class will be subsidized by the lecturer with about US$10, the ultimate price of the bundle is **SG$40** for everyone.

1. Marketing Engineering for Excel Software for Students
2. Tutorials and Example Data Sets
3. DecisionPro Business Cases with Data Sets for Students

Further to these “paid” materials, students will also have access to the free resources:
1. Technical Notes: The technical notes are designed as additional reference material for the Principles of Marketing Engineering 2nd Edition. The book has removed most of the equations (i.e., the “how to”) of marketing engineering in favor of conveying the importance and value of the concepts (i.e., the “why”). These notes provide that technical background material.
2. Software Tutorial: The free software tutorials provide step-by-step instructions for utilizing the Marketing Engineering for Excel software package. The tutorials are designed to work with the sample data sets included with the software. These tutorials are included by default with the software installation and can be found under each model option in the “ME>XL” menu.

System requirements for the software:
- Microsoft Windows XP, Vista, 7, 8 (32 bit or 64 bit)

* For Mac users, the software is offered as a service (ME cloud) by the publisher and can be accessed through your web browser. As the publisher has verified, the windows software license that is provided to the university can be exchanged for access to the ME cloud.

Making Your Payment
- Venue: The marketing general office at MRB #08-23
- Contact: Ms. Wang Kim Fong (mktwkf@nus.edu.sg, 6516 3463)
- Time: 12 Jan 2015, between 9:00am – 5:00pm
- In case you cannot make it to the day, send an email by that day to the contact to reserve your copy and negotiate a time to pay the fee. Please also cc me (bizyaod@nus.edu.sg). Failing to do so means that you will have to purchase on your own.

Issues with Using the Software
- Step 1: Create an account on DecisionPro website: http://bit.ly/mkt3421-create;
  - Student access code will be mailed to the registered students by the TA.
- Step 4: Activate the software: Please refer to the user manual available in the downloaded package.
  - NOTE: We will purchase individual license instead of the group license, and each individual license can be used to activate only ONE copy (i.e., just one computer). So you should keep your own license code confidential before using it, and it’s advised to activate the software on your laptop so you can bring it to class.

ANNEXURE II:
Supplementary Reading Materials for Interested Students ONLY

Interested students are strongly encouraged to read through (some of) the following books, most of which are available via the collection of the library, to advance their knowledge to be prepared for marketing-related jobs in the future, be it a marketing analyst, or resource allocation planner, or a more advanced role such as the regional marketing manager, or potentially a PhD student in marketing.

- Some general books on marketing analysis are:
  


- An excellent marketing strategy book that cover the basics of the analytic methods which can be used to support top-level marketing planning and decision making is:


- Some good marketing research books that you can always refer to are:


Finally, this book covers the development of analytic tools for marketing and is widely used in PhD-level courses (be warned!):


**ANNEXURE III:**

**Suggested Statistical Software for Interested Students ONLY**

While Microsoft Excel can perform some basic data analysis, and is THE software we use in this class, it has limited capability for complex statistical computing and visualization as compared to other statistical software such as R and Python.

If you have great interest in business analytics (meaning you want to embrace the “sexiest job of the 21st century”⁵), you are strongly encouraged to learn either R or Python. Both are free (!) and superior to other statistical software such Stata, SPSS, SAS, and Matlab, in terms of their customizability, capability to produce better graphics, as well as the availability of plenty of third-party packages. Nevertheless, to use either R or Python, you need to learn some (very) basic programming skills (i.e., you need to write your own code to implement some operations rather than click on the menus). The learning curve for R is a bit steeper than that for Python, but R is better suited for statistical analysis and has some more third-party packages, as it has emerged as the most popular programming language among the Data Scientists community for quite some time, but most recently there is debate that Python is replacing R as THE programming language for Data Science⁶.

I’m a veteran in R and a beginner in using Python for statistical analysis, and I would be available for any consultation and discussion about how to use either language.

**ANNEXURE IV:**

**A Word Cloud of the Book & Course Outline**

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