MKT 425 – Introduction to Internet Marketing

Syllabus – Fall 2014 – Tuesday/Thursday – 12:00 – 1:50

Professor: Dina Mayzlin
Office: HOH 619
Office Phone: 213-740-3360
Office Hours: Tuesday 9:00 – 10:00

E-mail: mayzlin@marshall.usc.edu

Course Description

Internet marketing has evolved to be an essential aspect of all marketing activities. In this class students will gain an in-depth understanding of digital marketing strategy. The organization of the course is the following:

1) **Digital Marketing Strategy**
   In this module we will talk about technology fundamentals, digital strategy, online business models, pricing and content marketing. We will discuss four business cases related to these topics.

2) **Reaching the Customer Through Ads**
   Here we will study various aspects of online advertising. We cover topics such as banner ads, retargeting, and search advertising. We will be doing data analysis using Excel software (students will learn how to do more advanced Excel techniques such as Pivot tables and regression analysis). We will cover all the tools needed to do the data analysis in class (no previous data analysis experience is necessary).

3) **Social Media Strategy**
   We will study how a company can build its social media strategy. We will cover topics such as why people talk and the structure of social networks. Finally, we will study how the firm can listen, engage and promote to customers using social media.

4) **Integrated Digital Marketing**
   This module will present an integrated view of digital marketing. We will cover two additional company cases as well as student final projects.

This course is very hands-on – there will be lots of in-class discussion and experiential exercises. This course is appropriate for more advanced students (ideally, juniors or seniors). However, since all of the concepts and frameworks will be covered in class, and the topic is of general interest, this class is appropriate of students of all majors who are interested in digital marketing.

Learning Objectives

- Students will gain factual, conceptual, and procedural knowledge of digital marketing strategy.
- Students will understand current technology (the infrastructure of the Internet, the mechanics of online advertising, and various social platforms) as it applies to digital marketing.
- Students will apply theories, models, and frameworks introduced in class to analyze how firms can optimize their digital marketing strategy.
- Students will gather, categorize, analyze, interpret, and evaluate relevant qualitative and quantitative information through case discussions, assignments and final projects.
- Students will critically question problems, competing priorities and points of view in situations characterized by ambiguity and/or uncertainty.
• Students will learn advanced Excel commands that will enable them to perform statistical analysis of online data.
• Students will demonstrate the ability to be creative and innovative in seeking solutions to online marketing business dilemmas.
• Students will demonstrate the ability to communicate their ideas clearly and precisely through frequent in-class case discussions and group project presentation.

**Required Materials**
The course packet includes all relevant cases and supplementary readings. Assignments will be posted on Blackboard.

**Prerequisites and/or Recommended Preparation:**
There are no prerequisite courses. However, this class is not open to first-semester freshmen.

**Course Notes:**
Please check the course postings on the Blackboard regularly for class lectures, announcements and instructions (http://blackboard.usc.edu). You should always check the postings here before coming to class.

**Grading Policies:**
Final grades represent how you perform in the class relative to other students. Your grade will not be based on a mandated target, but on your performance. Historically, the average grade for this class is about 3.3 (between B and B+).

Three items are considered when assigning final grades:
- Your average weighted score as a percentage of the available points for all assignments (the points you receive divided by the number of points possible).
- The overall average percentage score within the class.
- Your ranking among all students in the class.

**Assignments and Grading Detail**

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Points</th>
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<tbody>
<tr>
<td>TESTS</td>
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<tr>
<td>Test I</td>
<td>50</td>
<td>12.5%</td>
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<tr>
<td>Test II</td>
<td>50</td>
<td>12.5%</td>
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<tr>
<td>IN-CLASS CASE DISCUSSION PARTICIPATION</td>
<td>100</td>
<td>25%</td>
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<tr>
<td>CASES AND ASSIGNMENTS</td>
<td>100</td>
<td>25%</td>
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<tr>
<td>GROUP PROJECT</td>
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<td>25%</td>
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<td><strong>TOTAL</strong></td>
<td><strong>400</strong></td>
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1) **Tests**
There are two in-class exams. The first exam will cover strategy and advertising. The second exam will focus primarily on social media strategy and integrated digital marketing.

2) **In-Class Case Discussion Participation**
In-class participation is a large part of the course grade. This course includes a large number of business cases. In order to achieve a high participation score, the students are expected to do the following:
   a. Come to class on time and turn off all electronic devices
   b. Come to class prepared to discuss the day’s case
c. Contribute meaningfully to the class discussion (I expect all students to make at least one comment or observation per class)
d. Be ready to answer the professor’s question if called on in class
e. In addition to the regular case discussion, all groups will be assigned to prepare one case over the course of the class. That will involve making slides, as well as making a brief in-class presentation. (See Appendix I).

3) Case Write-Ups (See Appendix I for more detail).
   a. All of the cases are accompanied by write-up questions (available on Blackboard). These brief 2-page write-ups have to be handed in (hard copy) on the day that the case is discussed.
   b. The write-ups are evaluated on depth of analysis and completeness.

4) Data Analysis Assignments (See Appendix II for more detail).
   Students will analyze online ads data using Excel (with lots of guidance from the instructor). While most of the analysis will be done as part of an in-class lab, the students will be asked to hand in small deliverables.

5) Group Project (See Appendix III for mode detail).
   a. The course involves a hands-on group project in teams of four. Each group will be asked to either develop a new Internet business idea or to analyze the digital marketing strategy of an existing product.
   b. The projects are meant to serve as ways for students to try out new ideas that they learn in class.
   c. The deliverables are the following:
      i. Students will make a brief presentation in early October to pitch their ideas to the class.
      ii. The in-class project presentation is in mid-November
      iii. The final project report is due (electronically) on the day of the scheduled final exam.
      iv. Feedback on projects will be given throughout the course of the semester.

Assignment Submission Policy:
Assignments must be turned in on the due date in person (via hard copy). Any assignment turned in late will receive a grade deduction (for example, if your work is a B+ grade, you will be given a C+ grade). If you are unable to attend class on that day, please email me the assignment by the start of class. Late or not, however, you must complete all required assignments to pass this course.

MARSHALL GUIDELINES

Add/Drop Process
Example: If you are absent six or more times prior to Nov 14, 2014 (the last day to withdraw from a course with a grade of “W”), I may ask you to withdraw from the class by that date. These policies maintain professionalism and ensure a system that is fair to all students.

Retention of Graded Coursework
Final exams and all other graded work which affected the course grade will be retained for one year after the end of the course if the graded work has not been returned to the student (i.e., if I returned a graded paper to you, it is your responsibility to file it, not mine).

Technology Policy
Laptop and Internet usage is not permitted during academic or professional sessions unless otherwise stated by the respective professor and/or staff. Use of other personal communication devices, such as cell phones, is considered unprofessional and is not permitted during academic or professional sessions. ANY e-
devices (cell phones, PDAs, I-Phones, Blackberries, other texting devices, laptops, I-pods) must be completely turned off during class time. Upon request, you must comply and put your device on the table in off mode and FACE DOWN. You might also be asked to deposit your devices in a designated area in the classroom. Videotaping faculty lectures is not permitted due to copyright infringement regulations. Audiotaping may be permitted if approved by the professor. Use of any recorded or distributed material is reserved exclusively for the USC students registered in this class.

Statement for Students with Disabilities
Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to your TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776. For more information visit www.usc.edu/disability.

Statement on Academic Integrity
USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. SCampus, the Student Guidebook, (www.usc.edu/scampus or http://scampus.usc.edu) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/. Failure to adhere to the academic conduct standards set forth by these guidelines and our programs will not be tolerated by the USC Marshall community and can lead to dismissal.

Emergency Preparedness/Course Continuity
In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.

Please activate your course in Blackboard with access to the course syllabus. Whether or not you use Blackboard regularly, these preparations will be crucial in an emergency. USC's Blackboard learning management system and support information is available at blackboard.usc.edu.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Prepare for Class</th>
<th>Assignments Due in Class</th>
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<tr>
<td><strong>Digital Marketing Strategy</strong></td>
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<td>1 Tue 8/26 Intro</td>
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<td>2 Thu 8/28 Technology Fundamentals</td>
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<td>3 Tue 9/2 Digital Marketing Strategy</td>
<td>Marketing the Big Skinny Case (Group 1 and Group 2)</td>
<td>2-page case write-up due</td>
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<td>4 Thu 9/4 Business Models</td>
<td>Facebook Case (Groups 3 and 4)</td>
<td>2-page case write-up due</td>
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<td>5 Tue 9/9 Pricing</td>
<td>NY Times Paywall Case (Group 5 and Group 6)</td>
<td>2-page case write-up due</td>
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<td>6 Thu 9/11 Content Marketing</td>
<td>Demand Media Case (Group 7)</td>
<td>2-page case write-up due</td>
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<td><strong>Reaching the Customer Through Ads</strong></td>
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<td>7 Tue 9/16 Online Advertising</td>
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<td>8 Thu 9/18 Banner Ads</td>
<td>Star Digital Case</td>
<td>2-page case write-up due</td>
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<td>9 Tue 9/23 Tracking Eyeballs Across Sites Part 1</td>
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<td>10 Thu 9/25 NO CLASS – RH</td>
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<td>11 Tue 9/30 Group Project</td>
<td>In-Class Pitches (5 mins)</td>
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<tr>
<td>12 Thu 10/2 Tracking Eyeball Across Sites Part 2</td>
<td>Engage Assignment 1</td>
<td>Engage Assignment 1 due</td>
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<tr>
<td>13 Tue 10/7 Tracking Eyeball Across Sites Part 3</td>
<td>Review what you did in previous class</td>
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<tr>
<td>14 Thu 10/9 Air France Part 1</td>
<td>AirFrance Case (see handout on Blackboard)</td>
<td>Engage Assignment 2 due</td>
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<td>15 Tue 10/14 Air France Part 2</td>
<td>Look over what you did in previous class</td>
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<td>16 Thu 10/16 More Digital Ads Practice</td>
<td>Marshall Admissions Assignment</td>
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<td>17 Tue 10/21 In-Class Exam 1</td>
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<td><strong>Social Media Strategy</strong></td>
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<td>18 Thu 10/23 Social Media Strategy + Examples</td>
<td>AmEx Case</td>
<td>2-page case write-up due</td>
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<td>19 Tue 10/28 Why do People Talk?</td>
<td>Dove Case</td>
<td>2-page case write-up due</td>
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<td>20 Thu 10/30 Social Networks</td>
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<td>21 Tue 11/4 Listen</td>
<td>United Breaks Guitars</td>
<td>2-page case write-up due</td>
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<td>22 Thu 11/6 Engage Promote</td>
<td>Ford Fiesta Case</td>
<td>2-page case write-up due</td>
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<td><strong>Integrated Digital Marketing</strong></td>
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<td>23 Tue 11/11 Prep: Nettwerk Case</td>
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<td>2-page case write-up due</td>
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<td>24 Thu 11/13 Prep: Lowes Case</td>
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<td>2-page case write-up due</td>
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<td>25 Tue 11/18 In-Class Group Project</td>
<td>Record insights/ideas/follow-ups</td>
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<tr>
<td>26 Thu 11/20 In-Class Group Project</td>
<td>Record insights/ideas/follow-ups</td>
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<td>27 Tue 11/25 Presentations Debrief</td>
<td>Prepare to discuss what you learned</td>
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<td>28 Thu 11/27 Thanksgiving</td>
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<td>29 Tue 12/2 Course Overview</td>
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<td>30 Thu 12/4 In-Class Exam 2</td>
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MKT 425 Syllabus
Appendix I (Case Write-Up Questions and Case Team Group Assignments)

Please limit your write-up responses to 2 pages (max). Whenever possible, cite specific evidence from the case to support your argument. There are no right or wrong answers, but the quality of your write-up will be determined by how well-argued and well-supported your answers are. The grading is done on the following scale: 2 (exceeds expectation), 1 (meets expectation), < 1 (does not meet expectations).

The team assignment presentations are expected to be brief – 5-7 mins.

1) **Marketing the Big Skinny**
   - **Write-Up Questions**
     1) What should Kiril focus on next? What should be his lowest priority? Why?
     2) Evaluate Big Skinny’s sponsored search strategy. Are there any search keywords for which you would encourage Big Skinny to increase its bid? Lower its bid?
     3) How effectively is Big Skinny using social media to sell its wallets?
     4) Should Big Skinny expand its partnership with online distributors?
   - **Group 1 Assignment:**
     Please prepare to present 2 slides in response to 1) above.
   - **Group 2 Assignment:**
     Please prepare to present 2 slides in response to 2) above.

2) **Facebook**
   - **Write-Up Questions**
     a. Evaluate the success of advertising on Facebook (successes? failures?)
     b. Evaluate the success of FB fan pages.
     c. Evaluate FB Platform and FB for Websites.
     d. Which of the three options should FB emphasize as it seeks to monetize?
   - **Group 3 Assignment:**
     Please prepare and present 2 slides in response to a above.
   - **Group 4 Assignment:**
     Please prepare and present 2 slides in response to b above.

3) **NY Times Paywall**
   - **Write-Up Questions**
     1) Is the Paywall working?
     2) How would you evaluate the current Paywall with the two prior ones? How does it compare to the Wall Street Journal in terms of design?
     3) Is the Paywall going to provide the NY Times with a solution to its current difficulties? Does it seem like a good strategy?
   - **Group 5 Assignment**
     Please prepare and present 2 slides in response to 1) above.
   - **Group 6 Assignment**
     Please prepare and present 2 slides in response to 2) above.

4) **Demand Media**
   - **Write-Up Questions**
     1) What revenue sources does Demand Media rely upon? Which ones look most promising?
     2) Who are the Demand Media’s competitors? Collaborators?
3) How should the business respond if audiences start to rely more on social recommendations than search?

- **Group 4 Assignment**
  Please prepare and present 2 slides in response to 1) above.

5) **Star Digital Case Write-Up Questions**
   a) Why can’t you measure the effectiveness of advertising by simply looking at the clickthrough rate?
   b) Describe the experiment conducted by Star Digital.

   The following question involves some very basic manipulation in Excel. (Basically sorting and maybe taking averages). If you have trouble figuring this out, check out the Lynda tutorials on Blackboard. If you are still having trouble, you probably need to see me in office hours.

   c) Take a look at the accompanying Star Digital spreadsheet (available on Blackboard). Please answer the following:
      - For how many consumers do we have data?
      - How many people purchased at Star Digital?
      - How many people in the test condition purchased at Star Digital?
      - How many people in the control condition purchased at Star Digital?
      - What was the largest number of ad impressions that a consumer saw at website #3?
6) **Study Guide for Air France Case (please print out the table, fill it in, and bring it to class)**

Here are some metrics (“Key Performance Indicators” or KPIs) to use to evaluate publisher performance. First go through this list and fill in the missing formulas, using the column names from the DoubleClick data tab on the Air France data spreadsheet. Also, answer the questions about abbreviations.

<table>
<thead>
<tr>
<th>KPI</th>
<th>Formula</th>
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<tbody>
<tr>
<td>Avg. CPC</td>
<td>What does that stand for?</td>
</tr>
<tr>
<td>CTR</td>
<td>What does that stand for?</td>
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<tr>
<td>Transaction Conversion Rate (TCR)</td>
<td># of Bookings/Clicks</td>
</tr>
<tr>
<td>Net Revenue</td>
<td>Total Revenue from Bookings – Total Cost of Clicks</td>
</tr>
<tr>
<td>Return on Ad $ Spent (ROA)</td>
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<tr>
<td>Average Revenue per Booking</td>
<td>Total Revenue from Bookings/# of Bookings</td>
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<tr>
<td>Overall Probability of Booking (i.e., the chance that someone books a trip given that they were shown an ad)</td>
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1) Use a pivot table to calculate each of these metrics for each of the seven publishers in the DoubleClick data.
2) Which of these metrics do you have Kayak data for? Do those calculations.
3) Create a scatter plot that shows a point for each of the seven publishers in the DoubleClick data:
   - Net Revenue on the horizontal axis and ROA on the vertical axis.
4) Looking just at Google-US, calculate the KPIs for each of the campaigns for that publisher.

In our next class, we will discuss
- How can the set of KPIs be used to evaluate the publishers?
- What do the results of your data analysis suggest for changes to the use of the different publishers? (For example, should the use of different publishers be expanded or reduced; should changes be made in the search ads; should other campaign tactics be adjusted?)
- What other suggestions do you have about managing their search ad campaigns?
7) **AmEx Write-Up Questions**
   a) What impact does Members Project have on American Express’ profit and cardholders’ social relationships?
   b) What about “Members Know”?
   c) What about “Open Forum”?
   d) What about Link/Like/Love?
   e) How would you propose to formally measure the impact of these online platforms on profit?

8) **Dove Write-Up Questions**
   a) Spend some time searching blogs (or communities) to get a sense of what people are saying about Dove today. How can you measure what you are finding? That is, how can you summarize and present your findings quantitatively?
   b) Footnote 1 of the case asks, “Is marketing now cheap, fast and out of control?” Footnote 2 refers to Dove having started a conversation that “they don’t have control of.” Do you see risks for the Dove brand today?

9) **United Breaks Guitars Write-Up Questions**
   1) Evaluate United’s response to Dave Carroll’s video? Did the airline handle the incident well?
   2) Why was the video seen by so many people, so quickly?
   3) Based on the case, as well as on what we learned in class so far, what does it take for a video to propagate (move through the social network) quickly?
   4) Suppose that United wanted to formally measure the effect of their response. How would they go about doing it?

10) **Ford Fiesta Write-Up Questions**
    1) How is Ford Fiesta Movement performing based on the info provided by the case?
    2) Is the campaign under the company’s control?
    3) Are you satisfied with the reach of the campaign?
    4) What is your advice – should they stay the course or make changes?

11) **Nettwerk Write-Up Questions**
    1) How viable do you think is the long-tail strategy for musicians/artists?
    2) What are awareness bumps and how does Nettwerk exploit them? Can you measure these bumps?
    3) What are the prospects for Polyphonic?

12) **Lowes Write-Up Questions**
    1) What are the primary factors that influence customers to pursue a kitchen remodel project? Describe the major steps involved in their buying cycle?
    2) What marketing campaign (traditional or digital) would be appropriate for Lowe’s NGIS? If Lowe’s proceeds with a digital marketing campaign, should it be a standalone digital campaign or a complement to the company’s existing marketing campaign?
    3) How would you measure the effectiveness of this campaign?
Appendix II – Engage Assignments 1 and 2

Engage Assignment 1: Getting Started on Using Visitor Profiles for Retargeting
The purpose of this assignment and the next assignment is show how data mining and simple models based on visitor interests can greatly improve the targeting of advertising.

Susan Smiley had graduated from USC and settled into her new job. As she skimmed the web for the latest stock prices, a banner ad for a sports car appeared on a page. She thought, “why not?” and clicked on it to see if anything interesting might appear. Across town Andy Angst was just starting school. As he checked the web for a weather forecast to decide whether he should surf on the weekend, the same banner came up. He did not click on the ad.

Clearly the car advertiser was happy to have placed the ad on Susan’s page and probably would rather not have paid for the one that appeared on Andy’s. In this exercise we go behind the scenes to see how the information gathering and processing power of the Internet can increase the efficiency of targeting advertising to potential customers. We may also be able to see, at least in one example, that efficiency increases may have limits.

Direct marketing comes in many forms: a salesperson calling on a prospect, LL Bean sending out a catalog, a telemarketer calling you at dinner, and so forth. A web advertiser placing a banner on a page is new instance of an old process. In each case the marketer has the goal of sending messages to good prospects and not to poor ones. On the customer side, most people, if they must see ads, prefer to receive messages about products and services that interest them rather than those that do not.

How does a banner reach your computer screen? Somewhere an advertiser wishes to send people messages about its product and has chosen banner ads on the web as a media vehicle. Typically, an advertiser works with an advertising agency to develop a campaign for a product, say, the sports car. The agency and advertiser work out details of the creative content of the ads, the number of viewings (called exposures or impressions) to be served, the type of visitors desired, and the budget.

To deliver the ads, the agency deals with one or more ad networks or large sites. An ad network is a space aggregator and broker that has contractual arrangements with a set of sites offering advertising space on their pages. When the time comes to place a banner, a piece of software called an ad manager, does the heavy lifting. The ad network will have an ad manager, or a big portal site may have its own.

Mechanically, when you ask for a page by clicking on a hyperlink, a message goes to the URL that is imbedded in the hyperlink to deliver a page. The page is designed, usually on the fly, and sent to you as a series of files that are assembled by your browser and displayed on your screen. If there is a place on the page for an ad, a message goes out to the ad manager, which decides whether one of the campaigns it is scheduling has an appropriate ad for this time slot, site, and visitor. If so, it dispatches sufficient information to identify your computer and the page being built to an ad server, which holds the actual ad file. The ad server then dispatches the ad file to your computer.

Note that the site you are visiting, the ad manager, and the ad server may be on entirely different computers at different physical locations, or, of course, may be all on one server. One might have a concern that the ad dispatching process would introduce excessive waiting time, but, by and large, it does not, because most of the messages and files are quite small.

Interest profiles. If we know something about the visitors, we are better equipped to show ads to people who might be interested in them and avoid people who are not. But how can we determine people’s interests? A number of companies have built “interest profiles” of web users. DoubleClick and Company X Technologies are examples. Profiles are built through the cooperation of one or more ad networks or large portals. Each page generated by these sites is classified for the interests represented, e.g., news, sports (subdivided many ways), financial services, etc. and carries a tag to that effect. Several hundred categories are typical. Visitors to the cooperating sites are identified by Company X or DoubleClick through a cookie. Log files from the servers are then analyzed offline to generate an interest profile for each visitor the tags on the pages that the visitor downloaded.
In the exercise that follows, we have a database of visitors who received one or more exposures to a particular ad campaign. Let us suppose that the product being advertised is a Jeep Cherokee and the ad campaign is on Yahoo. We shall think of the data we have as a test sample. From this we want to develop rules for whom to target in an extended campaign for Cherokee on Yahoo. The data tell whether the visitor clicked on the banner ad during the test (a clickthrough). In addition we have the visitor’s interest profile (or, actually, a small but relevant segment of it). The profile entries are numbers between 0 and 1 indicating the relative degree of interest to that visitor of such topics as Games, Arts, Fashion, Snowboarding, etc.

We take clickthroughs as an important and easily accessible measure of effectiveness of the ad. Our goal will be to build a simple predictive model of clickthroughs as a function of interest scores and such other variables we may be able to develop. Further we wish to evaluate the quality of the predictive model. The model we shall use is linear regression, although other techniques are also possible. This assignment will lead you through building such a model. The manipulations in this problem set can be done in Excel.

The clickthrough and profile data are contained in an Excel file – “engage_data.xls.” Each row in the spreadsheet represents a person who was exposed to the campaign. The first column indicates whether the person did or did not click on the Jeep ad. The next set of the columns shows the visitor’s profile: they consist of different categories. Each column is a different category which contains a number between 0 and 1. The higher the number, the higher the interest that the person displayed in this category in his previous travels on the Net. The profile is not complete since we can only track the person’s travels in sites that participate with the firm constructing the profiles. Also, the same visitor can be exposed a number of times. Thus we have the column and variable log(number of visits) which keeps track of how many times the visitor was exposed to the ad in the test campaign.

Please answer the following questions about your data:

1) How many different profiles do you have?
2) How many clicks are there?
3) What is the clickthrough rate in your data?
4) Do you see any patterns – which profiles (people) are more likely to click? How can you tell?
Engage Assignment 2: Building a Model Using Visitor Profiles for Retargeting

The analysis for this assignment is meant to be done primarily in-class. Please write it up and hand it in.

Regression Exercise on the Entire Sample
1) Run a regression on the entire sample (all the rows) where the dependent variable is the click variable and the independent variables are games, arts, and fashion.
   a) That is, run \( \text{click} = \text{constant} + a_1 \text{games} + a_2 \text{arts} + a_3 \text{fashion} \) on all the rows. Interpret the sign of the coefficients.
   
   b) The dependent variable is (0,1), so we can interpret the regression (rather roughly) as finding the probability that the visitor will click. Suppose that I come to Yahoo and my games index is 0.4, my arts index is 0.1, and my fashion index is 0.3. What does your model say is the probability that I will click on the ad?

2) As you can see, there are many other variables besides these. Try running the same regression as above, but include all the available variables on the right-hand side. Report the coefficients and their t-values. Interpret the sign on the log(num_visits) coefficient. Are you surprised by this result (why/why not?)

3) Based on your model, calculate the predicted probability of clicking for each person in the sample. (Let’s call this variable pred_probability).

4) Sort the data by pred_probability (from largest to smallest). Consider the top 10 people (with the highest probability of clicking). How many of them actually clicked?

Calibration & Holdout Samples
In the first part, you were asked to run your model on the entire data. However, a better technique of building and testing models is to build the model on a sample of the data (calibration sample) and to test the predictive fit of the model on the rest of the data (the holdout sample).

5) To build the model, consider data with ids 1 through 2178 only. This is your calibration sample. Run the regression with click as the dependent variable and all other variables on the right hand side. Report the coefficients and t-values.

   Now, based on your model, calculate the predicted probability of clicking for each person in the calibration sample. Call the newly calculated variable \textit{pred_prob}.

6) Now, explore how well the model predicts the data in the calibration sample. We want you to do this by using percentile plots. The questions below guide you through construction & interpretation of these plots.

   a. Sort the data by the predicted probability variable in descending order. Which person does your model predict is most likely to click on the ad? If your model works perfectly, in which rows would you expect to see all the clicks? If your model works as well as chance guessing, where are you more likely to observe a click: in the 4th row or in the 1000th row? Does a better model contain more or fewer clicks at the top?

   b. How many clicks do you have in the calibration sample? After you use 10% of exposures (note that in this case, \textit{exposure} = \textit{person} = row in a spreadsheet), how many clicks does the model capture? After 30% of exposures?
c. Create a graph where you graph "% of clicks captured" against "% of exposures used"? Explain how this illustrates the goodness of fit of the model.

d. On the same graph, graph the (expected) performance of the model that is chance guessing. Compare this model to the one in c.

7) Use the data with ids 2179 - 4514 until the end for the holdout sample. Repeat second part of 5 (calculate the predicted prob of click for each person) for the holdout sample using the coefficients you obtained in the calibration sample. (Why do we use the coefficients obtained in the calibration sample instead of running the regression again?)

8) Does the model work better for the holdout or the calibration sample? (Hint: use the method described in 6). Why?
Appendix III – Group Projects

The project should be done in a team of four students. There are two broad options: 1) either develop a new Internet business idea or 2) analyze the digital marketing strategy of an existing product. If you have other exciting ideas, there is always option 3) “other.” The content of your project will depend on what exactly you plan to do. I always prefer depth over breadth.

First, let me list requirements that pertain to all projects. I will then give specific guidelines for options 1-3.

1. General Project Guidelines
The deliverables (see syllabus for exact timing) are:
- A 5-minute idea pitch presentation
- A 15-minute final presentation
- A 10-page report (double-spaced) – due the day when the final exam is scheduled

This is a research report. You should be referencing sources throughout the report.

1) Secondary data sources (to describe the market, competition etc)
   a. Newspapers/Trade journals
      i. NY Times (http://www.nytimes.com/)
      ii. Wall Street Journal (http://online.wsj.com/home-page)
      iii. Ad Age (http://adage.com/)
      iv. Ad Week (http://www.adweek.com/)
   b. Market Research
      i. Pew Internet Project - http://www.pewinternet.org/
      ii. Newspapers – Wall Street Journal, Business Week, NY Times, etc
      vi. comScore research - http://www.comscore.com/Insights/?tag=Marketing%20Research
   c. Blogs (have good links to research)

2) Primary data sources (data that you collect, may be used to describe your product or your competitor)
   - Social Media Footprint
      i. What are the customers saying about the competition?
      ii. How would you characterize the product’s potential customers? Are there different segments? Is there a dominant segment? (What is the evidence for this on Twitter, etc?)
      iii. What is the primary competition?
      iv. What are some of the strengths and the weaknesses of the competition?
   - Original interviews (optional)
      i. Do your friends like your idea?
      ii. Any other info you can get from these conversations?
Here is a **suggested** outline for your project, depending on the exact options you want to pursue.

**2. Suggested Outline for New Internet Idea Project**

a. **Introduction**
   - Please explain your idea
   - Please explain how you came up with your idea
   - What do you see as the main challenges that are facing you?

b. **Outlining a digital marketing strategy for your product**
   I would suggest that you use the STP framework.

[Diagram of Modern Marketing Strategy]

Following this framework, please make sure that you answer the following questions:

**5Cs**
- What is the value proposition – how is value being created here?
- What do you see as the competitive advantage of your company?
- What is the competition like? How different is your idea from the competition?

**STP**
- What is a helpful way to segment the market from the perspective of your new offering?
- Which segment do you plan to target?
- How will you position your product?

**4Ps**
- Can you outline in more detail the features of your product? How is this being driven by STP?
- What is the price you plan to charge?
- What sort of promotion do you intend to engage in?

c. **Conclusion**
   - Do you think your idea is feasible?
   - What are the major challenges/obstacles that you face?
   - What data would you need to collect if you wanted to move this forward?
   - How much money would you need to get started?


a. **Introduction**
   - Please explain why you chose this particular product
   - What were your main findings? (Main strengths and weaknesses)
• What were your recommendations in terms of improvements

b. Analysis of Existing Digital Marketing Strategy
   What is the current digital marketing strategy for your product? What do you see as the major strengths and weaknesses of the current digital strategy?

   I would suggest that you use the STP framework to perform this analysis.

   ![Modern Marketing Strategy Diagram]

   Following this framework, please make sure that you answer the following questions:

   5Cs
   What is the value proposition – how is value being created here?
   What do you see as the competitive advantage of your company?
   What is the competition like? How different is the product from the competition?

   STP
   What is a helpful way to segment the market from the perspective of your product?
   Which segment is the company currently targeting?
   How is the product being positioned?

   4Ps
   What are some of the key features of the product?
   What is the price structure?
   What sort of promotion does the firm engage in?

   In the course of your analysis, please make sure to point out the major strengths and weaknesses – what is working and what is not working.

c. Your Recommendations
   Finally, you need to make recommendations to improve the current weaknesses. What would you do differently? Would you position the product differently? Different target? Different promotion, etc?

d. Conclusion
   • This does not have to be super-long
   • What are some of the challenges you see in the future for this product?
   • What is some data that you would have liked to collect if you had more time and money?

4. Suggested Outline for “Other” Project Idea

   Suppose that your project does not neatly fall into either 1) analyzing strategy of an existing product or 2) new internet idea. What do you do?
First, don’t panic. If I approved your project, that is OK. Here are some general guidelines:

1) Your project will have the following three Sections (no matter what):
   a. Intro
   b. Main Analysis
   c. Recommendations
   d. Conclusion

2) Exactly what goes into Main Analysis is up to you. It could be, for example analyzing the Twitter strategy of company X. It could also be an online advertising experiment that you ran.

3) You can still make use of the STP framework (see descriptions of other types of projects) if that applies to you. Again, you are the driver here.

4) You really need to provide depth here. For example, if you are analyzing twitter feed, you have to do that very well.