

## MGT 6503 – Managing Information Resources – Fall 2016

### Sections A and B

### Syllabus (version 10/12/2016)

<p>Course Instructor:</p> <p><b>Marius Florin Niculescu, Ph.D.</b> Associate Professor, IT Management</p> <p>Office: Room 470 at CoB (4263 under 4-digit code) E-mail: <a href="mailto:marius.niculescu@scheller.gatech.edu">marius.niculescu@scheller.gatech.edu</a></p> <p>Instructor office hours:</p> <ul style="list-style-type: none"> <li>• Mon, Wed: 10:30- 11:15 am, 3-3:45 pm</li> <li>• Tu, Th: 10:45 am - 12:30 pm, 3-4 pm</li> <li>• also by appointment (if students cannot make it to any of the above sessions)</li> </ul>	<p>Teaching assistant:</p> <p><b>Katsiaryna (“Katja”) Siamionava</b> PhD Student, IT Management</p> <p>Office: Room 461D at CoB (4273 under 4-digit code) E-mail: <a href="mailto:ksiamionava@gatech.edu">ksiamionava@gatech.edu</a></p> <p>TA office hours:</p> <ul style="list-style-type: none"> <li>• TBA - the TA will hold office hours only for the hands-on tools and methods (before assignment deadlines or before exams)</li> </ul>
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Lecture times and location:

- Section A: 12:05-1:25 pm – MW - Room 224, College of Business
- Section B: 1:35-2:55 pm – MW - Room 224, College of Business

### **COURSE OBJECTIVES**

This course has a dual objective.

**1. Business concepts**

First, the course will introduce students to some of the emerging trends and business models, opportunities, transformations, and/or challenges faced by many companies and industry sectors due to the advances, interconnectedness, and ubiquity of information technology (IT). IT has been evolving at a breathtaking pace over the past couple of decades leading to fundamental changes in many industries. It is more important than ever for

companies, managers, and entrepreneurs to understand the evolving digital environment and how to leverage data-driven decision making towards creating sustainable IT-infused competitive advantage.

## **2. Tools and techniques**

Second, the course will introduce students to several relevant hands-on data management and mining tools and techniques that facilitate data-driven decision making. Information technology and information systems use data as input and output. Hence, having the skill set to understand, manipulate, and extract value out of data is of crucial importance in harnessing the full business potential of IT. In this course, we focus on three dimensions:

- Data storage and extraction
  - Relational database: concepts and normalization
  - Basics of MySQL querying
    - ✓ Software tool: MySQL (via phpMyAdmin interface within XAMPP)
- Data visualization
  - Visualization and analysis of networks
    - ✓ Software tool: Gephi
- Data analysis
  - Social network analysis, linear and discrete choice models, setup and analysis of randomized experiments (A/B testing), association rule mining, classification and clustering, decision trees, etc.
    - ✓ Software tool: R (via RStudio)
  - Note: the data analytics content in this course is designed to complement MGT 6500. The overlap is minimal.

## **COURSE MATERIALS**

### **a. REQUIRED READINGS**

The cases and readings described in the schedule that follows are available through Harvard Business Publishing via the link below. There are 8 cases/readings at \$4.25 each (and a free dataset associated with one of the cases) for a total of \$34 + taxes (electronic version). Note that a printed course pack is available for an additional cost.

<http://cb.hbsp.harvard.edu/cbmp/access/55651115>

### **b. REQUIRED REGISTRATION ON FORCLASS PLATFORM**

Some of the before-class and in-class questions (counting towards class participation) will be administered via the ForClass platform. You are required to enroll on ForClass for this course following the instructions below for your specific section (the cost is \$5 for the entire half-semester course).

The enrollment links are different for each section.

- Section A
  - ForClass class name: **GT MGT 6503 - Fall 2016 - Section A**
  - Self-enrollment link - <https://app.forclass.com/enroll/7LKXBX>
- Section B
  - ForClass class name: **GT MGT 6503 - Fall 2016 - Section B**
  - Self-enrollment link - <https://app.forclass.com/enroll/0U0B39>

Please also [add a photo](#) to your profile on ForClass for this course once you enroll.

**c. OPTIONAL BACKGROUND READINGS (highly recommended for those with little prior IT expertise):**

Gallaugher, John (Aug 2016), *Information Systems: A Manager's Guide to Harnessing Technology*, Version 5.0, Flatworld Knowledge (eISBN 978-1-4533-7575-4)

- The Study Pass digital format is cheapest (\$24 for online access). Any format works.
- <http://students.flatworldknowledge.com/course/2531819>

## **GRADING**

Class participation	20%
Group assignments	30%
Midterm exam	20%
Final exam	30%
<b>Total</b>	<b>100%</b>

**Extra-credit – up to 2%** (added to the final score)

**The conversion of Percentage Scores to Letter Grades is expected to be as follows:**

Rounding: Final percentage points will be adjusted to the closest integer percent. For example, 89.6% = 90% while 89.4% = 89%.

A = 89.5% – 100.0% (above 90% with rounding)  
B = 79.5% – 89.4% (80-89% with rounding)  
C = 69.5% – 79.4% (70-79% with rounding)  
D = 59.5% – 69.4% (60-69% with rounding)  
F = 0% – 59.4% (0-59% with rounding)

Note: the instructor may curve the grades if the need arises.

## **CLASS PARTICIPATION**

Class participation will be evaluated via before-lecture online questions (mostly about the assigned readings) and in-class activities (questions, exercises). Most of the questions will be administered via ForClass platform. Some of the in-class activities will be group activities.

There students are expected to complete the assigned readings and other required tasks before class and be well prepared for discussions during lecture time.

## **EXAMS**

The midterm and the final exams are **in-class, closed book, closed notes**. Practice questions will be posted online before the exams. There will be no make-ups unless for reasons mandated by the Institute policies. If a student cannot make it to one of the exams due to unavoidable circumstances, the student should contact in advance the instructor.

The exams are NOT cumulative.

## **GROUP ASSIGNMENTS**

There will be 3 group assignments throughout the course. Each assignment will be worth 10% of the final grade. Each assignment will be handed out at least a week before it is due (so you have at least one week to solve it). All submissions must be in electronic form (submitted via “Assignments” tab in T-square – acceptable file formats will be communicated for each assignment). Each submitted document must properly identify the authors. More instructions will be given along with the assignments.

In general, no late submission will be accepted (exceptions only in cases of pertinent situations such as documented medical conditions or Institute approved events).

NOTE – in case there is a dispute within a group due to free-riding issues or other incompatibilities and the issue cannot be resolved internally within the group, the students are encouraged to bring that issue to the attention of the instructor and/or the MBA office. Students may also submit peer evaluations to help with the resolution of such disputes.

## **SOFTWARE**

In this course, the students will use **R** (via **RStudio**), **Gephi**, and **MySQL** (via **phpMyAdmin** within **XAMPP**) during lecture time and for the assignments. All these pieces of software are open source (free) and can be installed on both Windows and OS X machines. Installation instructions will be provided.

RStudio and Gephi are also available via <https://mycloud.gatech.edu>.

In addition, students will utilize T-square and ForClass platforms, as well as Excel.

## **COMMUNICATIONS / CHANGES TO SYLLABUS**

The above procedures for grading and the class schedule that follows are subject to change (for example if a class is cancelled due to inclement weather). Any changes (with sufficient time for students to make necessary adjustment) will be posted on the shared class website on T-Square (<http://t-square.gatech.edu>). This website will be also used to distribute group assignments, grades, lecture notes, announcements. It is the students' responsibility to check the website *before* each class session.

Communication will also be based on the Georgia Tech student email (that ends in @gatech.edu) that is assigned to you. We pull that address automatically from the school database. It is your responsibility to have the Georgia Tech email account active and to receive and regularly read messages written to that address. If you have a personal address (like Gmail or Yahoo), please forward your Georgia Tech email to that address and make sure it is not filtered as spam.

## **ACADEMIC HONESTY AND HONOR CODE**

This course will follow the guidelines established by Georgia Tech's honor code and student handbook. Please see <http://osi.gatech.edu/content/honor-code> (additional information can also be found at <http://www.honor.gatech.edu/>). Any plagiarism or academic cheating will be reported to the Dean of Students. Please be aware of the following:

- All sources of information quoted in any of the course assignments should be appropriately acknowledged (you can use any unambiguous citation format).
- You must work alone without any unauthorized help during the exams.
- You must work within your groups on the assignments. You can seek general help on the subject matter relevant to the assignment from others, but work within your groups on the specific tasks. Please address specific questions to the TA or the instructor.

## **DISABILITY ACCOMMODATION**

The Georgia Institute of Technology has policies for disability accommodation through the Access Disabled Assistance Program for Tech Students (ADAPTS). Students may learn about these policies at the ADAPTS website: <http://www.adapts.gatech.edu>. Students seeking disability accommodation should refer to the student guide and documentation pages on this website. Students must comply with the requirements set forth in ADAPTS to receive accommodation.

## **USE OF ELECTRONIC DEVICES DURING LECTURE**

Course policies regarding acceptable use of electronic devices (laptops, smartphones, tablets, etc) during lecture time will be communicated by the instructor and may differ from lecture to lecture.

\*\*\*\* TENTATIVE SCHEDULE STARTING ON NEXT PAGE \*\*\*\*

## Tentative Schedule

Date	Topic	Group Assignment Posting and Due Dates	In-Class activities/tasks (this column does not include ForClass activities during lecture)	Assigned Readings / Tasks due <u>b4</u> lecture (this column does not include questions distributed via ForClass which are due b4 lecture)
Lecture 1: 10/19 (W)	Intro + Logistics  ForClass demo  <b>Digital Innovation, Transformation, and Ubiquity</b>			<p><b>Readings b4 class:</b></p> <ol style="list-style-type: none"> <li>HBR Article: <i>Digital Ubiquity: How Connections, Sensors, and Data Are Revolutionizing Business</i>, M. Iansiti and K. Lakhani – Nov 2014</li> </ol> <p><b>Task b4 class:</b></p> <ol style="list-style-type: none"> <li>Set up the ForClass account for MGT 6503 – self-enrollment links included in the syllabus</li> </ol>
Lecture 2: 10/24 (M)  <a href="#">Bring your laptop!</a>	<b>Network and Platform Economics in The Context of IT and IT-enabled Products and Ecosystems</b>		<b>In-Class Group Exercise:</b> Platform Game (Two-Sided Markets)	<p><b>Readings b4 class:</b></p> <ol style="list-style-type: none"> <li>HBR Article: <i>Pipelines, Platforms, and the New Rules of Strategy</i>, M. Van Alstyne, G. Parker, S. P. Choudhary – Apr 2016</li> <li><i>WeChat's World</i> – The Economist - Aug 6, 2016 <a href="http://www.economist.com/news/business/21703428-chinas-wechat-shows-way-social-medias-future-wechats-world">http://www.economist.com/news/business/21703428-chinas-wechat-shows-way-social-medias-future-wechats-world</a></li> <li>Optional reading Gallaughar: <ul style="list-style-type: none"> <li>Ch. 8: <i>Understanding Network Effects: Strategies for Competing in a Platform-Centric, Winner-Take-All World</i></li> </ul> </li> </ol>
Lecture 3: 10/26 (W)  <a href="#">Bring your laptop!</a>	<b>Social Networks, Social Media, User Generated Content</b>  <b>Network Analysis and Visualization</b>  Tool: Gephi	<b>POSTED</b> Group Assignment #1 (Network Analysis)		<p><b>Readings b4 class:</b></p> <ol style="list-style-type: none"> <li>CASE: <i>Vineyard Vines and the Brotherhood of the Traveling Pants</i>, M. Murray, M. Loftus, I. S. Dunklin – Darden UV7177- Aug 2016</li> <li>Optional reading: NY Times: <ul style="list-style-type: none"> <li><i>How one Stupid Tweet Blew Up Justine Sacco's Life</i>, J. Ronson – Feb 12, 2015 - <a href="http://www.nytimes.com/2015/02/15/magazine/how-one-stupid-tweet-ruined-justine-saccos-life.html?_r=0">http://www.nytimes.com/2015/02/15/magazine/how-one-stupid-tweet-ruined-justine-saccos-life.html?_r=0</a></li> </ul> Gallaughar : <ul style="list-style-type: none"> <li>Ch. 9: <i>Social Media, Peer Production, and Web 2.0</i></li> <li>Ch. 11: <i>Facebook: A Billion-plus users, the High-Stakes Move to Mobile, and Big Business from the Social Graph</i> (sections 2.1, 2.2, 2.3, 3.3, 4)</li> <li>Ch. 12: <i>Rent the Runway: Entrepreneurs Expanding an Industry by Blending Tech with Fashion</i> (sections 3.1 and 3.2)</li> </ul> </li> </ol> <p><b>Software installation b4 class:</b></p> <ol style="list-style-type: none"> <li>Make sure you have access to <b>Gephi (version 0.9.1 or later)</b> <ol style="list-style-type: none"> <li>Installed on your laptop (from <a href="https://gephi.org">https://gephi.org</a>) OR</li> <li>via <a href="https://mycloud.gatech.edu">https://mycloud.gatech.edu</a></li> </ol> </li> </ol>

<p>Lecture 4: 10/31 (M)</p> <p><a href="#">Bring your laptop!</a></p>	<p><b>Online Search</b></p> <p><b>Online and Mobile Advertising</b></p> <p>R demo</p> <p>Tool: R Studio</p>			<p><b>Readings b4 class:</b></p> <ol style="list-style-type: none"> <li>Optional reading: Gallaugher: <ul style="list-style-type: none"> <li>Ch. 18: <i>Google in Three Parts: Search, Online Advertising, and an Alphabet of Opportunity</i> (sections 2-9)</li> </ul> </li> </ol> <p><b>Software installation b4 class:</b></p> <ol style="list-style-type: none"> <li>Make sure you have access to <b>R</b> and <b>R Studio</b> <ol style="list-style-type: none"> <li>Installed on your laptop – you need both R and RStudio <ol style="list-style-type: none"> <li>Get R from <a href="https://www.r-project.org/">https://www.r-project.org/</a></li> <li>Get R studio – the free open source edition – from <a href="https://www.rstudio.com/">https://www.rstudio.com/</a></li> </ol> </li> <li>OR</li> <li>via <a href="https://mycloud.gatech.edu">https://mycloud.gatech.edu</a></li> </ol> </li> </ol> <p><b>Get familiar with R (via R Studio) b4 class:</b></p> <ol style="list-style-type: none"> <li>Watch R tutorial on Lynda (<a href="https://lynda.gatech.edu">lynda.gatech.edu</a>) “Up and Running with R” – Intro and at least Modules 1 and 2</li> </ol>
<p>Lecture 5: 11/2 (W)</p> <p><a href="#">Bring your laptop!</a></p>	<p><b>Data Analytics (part 1)</b> Classification and clustering, Decision Trees, Association Rules (Market Basket Analysis)</p> <p>Tool: R Studio</p>	<p><b>DUE:</b> Group Assignment #1 (Network Analysis)</p>		
<p>Lecture 6: 11/7 (M)</p> <p><a href="#">Bring your laptop!</a></p>	<p><b>Data Analytics (part 2)</b> Linear regression review, linear probability model, logistic regression, A/B testing</p> <p>Tool: R Studio</p>	<p><b>POSTED:</b> Group Assignment #2 (Analytics)</p>	<p><b>In-Class Analytics Exercise:</b> StarDigital – Evaluating an A/B Test in the context of online advertising</p>	<p><b>Readings b4 class:</b></p> <ol style="list-style-type: none"> <li>CASE: <i>Star Digital – Assessing the Effectiveness of Display Advertising</i>, S. Narayanan and T. Yildiz - Stanford GSB Case M-347 – Mar. 2013</li> </ol>
<p>Lecture 7: 11/9 (W)</p>	<p><b>MIDTERM EXAM</b></p>			
<p>Lecture 8: 11/14 (M)</p>	<p><b>Relational Databases – part 1</b> Definitions, Normalization</p>			
<p>Lecture 9: 11/16 (W)</p> <p><a href="#">Bring your laptop!</a></p>	<p><b>Relational Databases – part 2</b> Basics of querying using MySQL</p> <p>Tool: XAMPP (phpMyAdmin)</p>	<p><b>DUE:</b> Group Assignment #2 (Analytics)</p> <p><b>POSTED:</b> Group Assignment #3 (Normalization + MySQL)</p>		<p><b>Get familiar with SQL b4 class:</b></p> <ol style="list-style-type: none"> <li>Complete the tutorial “Learn SQL” (all 4 modules) on Code Academy (<a href="https://www.codecademy.com">www.codecademy.com</a>) – enough to do the free part (no need to upgrade for the quizzes and project)</li> </ol> <p><b>Software installation b4 class:</b></p> <ol style="list-style-type: none"> <li>Install XAMPP from <a href="https://www.apachefriends.org">www.apachefriends.org</a> – detailed instructions for installation and setting up the root password for phpMyAdmin will be provided in a separate note from the instructor</li> </ol>

Lecture 10: 11/21 (M)	<b>Crowdsourcing and the Sharing Economy</b>			<b>Readings b4 class:</b> <ol style="list-style-type: none"> <li>CASE: <i>Fasten: Challenging Uber and Lyft with a New Business Model</i>, F. Zhu and A. Acocella - HBS Case – 9-616-062 – May 2016</li> <li>Optional reading: Gallaughner: <ul style="list-style-type: none"> <li>Ch. 10: <i>The Sharing Economy, Collaborative Consumption, and Creating More Efficient Markets through Technology</i></li> </ul> </li> </ol>
11/23/2016 (W) - THANKSGIVING BREAK – <u>NO CLASS</u>				
Lecture 11: 11/28 (M)	<b>Open Source Approach  Cloud Computing</b>			<b>Readings b4 class:</b> <ol style="list-style-type: none"> <li>CASE: <i>3D Robotics: Disrupting the Drone Market</i>, T. Start and C. Anderson – UC Berkeley – Haas Case B5826 – Feb 2015</li> <li>Optional reading: Gallaughner: <ul style="list-style-type: none"> <li>Ch. 14: <i>Software in Flux: Open Source, Cloud, Virtualized and App-driven Shifts</i> (<a href="#">sections 1-11</a>)</li> </ul> </li> </ol>
Lecture 12: 11/30 (W)	<b>Security and Privacy (part 1)</b>	<b>DUE:</b> Group Assignment #3 (Normalization + MySQL)		<b>Readings b4 class:</b> <ol style="list-style-type: none"> <li>CASE: <i>The Vulnerability Economy: Zero-Days, Cybersecurity, and Public Policy</i> - Harvard Kennedy School Case 2029 – Feb 2015</li> <li>Optional reading: Gallaughner: <ul style="list-style-type: none"> <li>Ch. 17: <i>Information Security: Barbarians at the Gateway (and Just About Everywhere Else)</i></li> </ul> </li> </ol>
Lecture 13: 12/5 (M)	<b>Security and Privacy (part 2)</b>			<b>Readings b4 class:</b> <ol style="list-style-type: none"> <li>CASE: <i>Apple: Privacy vs. Safety</i>, H. McGee, N. Hsieh, and S. McAra – HBS Case – 9-316-069 – Mar 2016</li> </ol>
12/7/2016 – READING DAY – <u>NO CLASS</u>				
12/8/2016-12/15/2016 – <b>FINAL EXAM</b> to be administered during FINAL EXAM WEEK <ul style="list-style-type: none"> <li>Exam times and locations for each section TBA</li> </ul>				