# Online Masters in Data Analytics

# MGT 8803 BUSINESS FUNDAMENTALS FOR ANALYTICS

# Fall 2019

## COURSE OVERVIEW

**Business Fundamentals for Analytics** introduces essential business concepts and is intended to ground the student in a foundational understanding of various business disciplines, business issues and problems, and business-related terminology. The course is taught as a series of business disciplinary modules and the professors who teach the modules represent a diversity of functional areas, including **financial accounting**, **finance**, **supply chain management**, **marketing**, and **business strategy**.

The primary goal of the course is to enhance the student’s effectiveness as a manager in the business world. A secondary goal is to introduce data analytics students to financial, operational, marketing, and strategic problems commonly faced by managers. By understanding the problem, data scientists are better prepared to support managers in decision-making and decision execution. By understanding the underlying issues and problems the data analyst is better positioned to define decision criteria, develop alternatives, identify analytical models and frameworks, and collect and analyze the relevant data. This course, however, does not focus specifically on data analytics technology and methods, but rather presents the material in the form of an MBA survey course to provide students without a business and management background a general introduction to the key core concepts.

**IMPORTANT:** A student should request a waiver for this course if the student **already has an undergraduate or graduate degree in business or has successfully taken a college level course in the five business disciplines taught in this course (Financial Accounting, Finance, Supply Chain Management, Marketing, and Business Strategy).**

The course is taught as an integrated set of five 3-week modules. Each module is led by an instructor with deep disciplinary skills in the relevant subject matter. Specific business module content and topic emphasis has been designed to introduce students to core concepts and fundamentals in that disciplinary area. Details regarding each of the five modules are provided later in this syllabus.

### Course Delivery

Course content is delivered, and student support is provided mainly through web-based educational and videoconferencing platforms. Although MGT8803 Business Fundamentals for Analytics is a “distance” course, the delivery of course material is designed to be as interactive as possible and students will have ample opportunity to meet with and communicate with course professors and teaching assistants (TAs). Direct student interaction is accommodated through weekly hour-plus videoconferences with the instructor and the frequent monitoring of course forums. For students who cannot attend the weekly videoconferences “live” the calls are recorded and posted to the course website. Any PowerPoint or other materials used to support the videoconferences are also posted to the course web site.

### Course Structure and Course Components

Business courses are generally taught using a combination of lectures, cases, experiential learning and individual self-paced research. In this course, lecture materials will be delivered through video topics. In terms of course structure, each module is typically organized into 3 one-week lessons. Each lesson is then organized into a series of topics. Each topic is supported by one or more brief videos. Each one-week lesson has a self-assessment quiz (not graded). And finally, each one-week lesson is supported by a video conference call. Video lesson transcripts and PowerPoints are also provided and all of this material is located at the course websites in Canvas and edX.

Most of the modules in this course will also have at least one business case or business simulation that will be used to tie the module lessons together and to provide students practical application of the concepts learned in the module. Students in the course will be organized into 5-person teams, with teams responsible for performing any graded case analysis. Cases that are not graded will remain an individual students’ responsibility.

Each module will also be supported by suggested readings from course packs purchased from selected websites. There are two course packs in total -- one of which is optional and suggested for students seeking a deeper understanding of the course material in the Business Strategy module. The other course pack however is required and must be purchased by the student. This course pack contains cases and simulations that students will submit for a grade in addition to articles and text excerpts deemed to be essential to understanding the course material. Course pack links are provided latter in this syllabus.

## COURSE MODULES

Below is a brief summary of each of the course modules. Each module is designed to be covered over three semester weeks

### Financial Accounting

The focus in Financial Accounting is to help the student develop skills in reading and analyzing GAAP-compliant Financial Statements – including The Balance Sheet, Income Statement, and Statement of Cash Flows. This module introduces the basic structure and content of such reports. This involves learning what items are included in the financial statements, how such items are measured, and how and when various economic events affect the financial statements. Students will acquire an understanding of what can be inferred from financial reports about the past operations, present position, and future prospects of a firm. More broadly, students will learn how financial accounting information can be used to evaluate firm performance, to compare the performance of different firms, and to make a variety of important business decisions based on the analysis of financial statements and financial ratios.

### Finance

The Finance moduleprovides a general introduction to finance and capital structure.  No matter what the manager’s role is in a corporation, an understanding of why and how financial decisions are made is essential. The module starts by describing the role of a financial manager in corporate decision making - emphasizing that the good decisions increase the value of the firm’s stock, and poor decisions decrease the value of the stock. Related to this is the concept of economic value creation (EVA) and the difference between economic profits and accounting profits. Students will then learn a central concept in finance – the time value of money; and how the time value of money is used as a critical component in capital budgeting - the decision-making process for accepting or rejecting projects. The student will learn how to calculate and apply important analytical techniques such as net present value (NPV), internal rate of return (IRR), and payback period. Importantly, the students will learn how these techniques are applied to approving projects and capital investments.

The student will also learn the determinants of relevant cash flows and role of sensitivity analysis and simulation in the context of NPV analysis. These methods are illustrated through several examples and a case. The module also covers the basics of stock valuation using discounted dividend models.

The Finance module concludeswith introducing the concept of risk and explains the distinction between diversifiable and systematic risk. Finally, the approach to estimating a firm’s cost of capital (WACC) will be explained and students will have the opportunity to calculate the cost of capital for several prominent firms. Students will also learn how WACC, when used as the discount rate in a NPV calculation, can be used to determine if the firm is creating or destroying economic value when investing in a project.

### Supply Chain Management

The goal of the supply chain management module is to introduce the student to the importance of operations and supply chain management in the business organization. Students will be exposed to the main challenges of managing a global supply chain and several best practices from leading firms will be highlighted. In addition to developing a basic understanding of supply chain business practices and strategy, this module will introduce students to several key operational level models or quantitative methods used in specific decision situations including the newsvendor model that provides insight into matching supply with demand.

While most students think of supply chain management as the domain of companies that make a product, the module highlights the importance of supply chain to the service industry as well. The module concludes by examining a phenomenon called the bullwhip effect and students will learn how the bullwhip effect distorts demand in a supply chain.

### Marketing

A sound marketing strategy is grounded in a detailed understanding of consumer needs/wants and focused on creating offerings that exceed customer expectations. To accomplish this outcome, students will learn how marketers assess opportunities via a rigorous analytical process that contemplates broader strategic considerations such as competitive offerings (both direct and indirect), the organization’s competencies, and contextual considerations. Students will also be exposed to approaches used by marketing management to determine target market segments and how to develop a precise marketing mix for each segment.

Understanding how customers think about brands and analyzing opportunities for differentiation is critical for marketing success. Marketers and data scientists are responsible for evaluating the buyer journey to determine ways to create awareness, engage customer interests, and drive consideration and conversion. Students will learn how elements such as branding, packaging, warranties, and product classes must be considered when developing products and services. Students will examine how a product’s “lifecycle” can be managed by stage; and the importance of lifecycle in determining strategies essential to maintain sustainable competitive advantage.

Finally, students will also be exposed to the other elements of the four “Ps” of marketing (also known as the “marketing mix”): Product, Pricing, Place, and Promotion. Issues and considerations will be discussed as they relate to 1) developing effective and efficient channel systems and distribution models; 2) crafting pricing objectives and policies along with determining customer value; and 3) creating promotion methods that maximize both digital and traditional modalities of communication along with assessing factors related to personal selling, PR, managing customer service, and establishing sales promotions.

### Business Strategy

To successfully compete, managers must develop the resources, capabilities, and core competencies needed to gain and sustain competitive advantage in their firm’s current and future markets. The methods in which organizations attempt to develop such competitive advantage constitutes the essence of their strategy regardless of whether their strategy is cost leadership, differentiation, or market focus. This module introduces the concept of business strategy and strategic management by explaining fundamental concepts such as planning and strategy as a critical component of the management process; how competitive advantage is created and sustained; different generic models of competitive advantage; the role of managerial vision and firm mission in driving business strategy; the relationship between strategy and business models; how uncertainty effects setting strategy; and relevant approaches and methods to strategy development.

Students will learn that strategy formulation must be based on a foundation of analysis. The focus of this module is how external (to the firm) and internal (within the firm) analysis drives management’s assessment of the opportunities and threats that the firm will encounter over the planning horizon. Students will be shown how to develop and apply a number of key analytical frameworks including PESTEL Analysis, The Structure-Conduct-Performance Continuum, VRIO Analysis, and Value Chain Analysis.

Based on analysis,strategies are formulated at multiple levels in the firm: corporate, business unit, and functional. This module concludes with discussions and exercises related to the following strategies: concentration, vertical integration, horizontal integration, and diversification. These strategies all represent different approaches to firm growth and explain how a firm can grow “organically” through innovation and creativity, and “inorganically” through acquisitions and mergers.

## COURSE SEQUENCE AND SCHEDULE

The module sequence will progress as shown below. Students should try to pace themselves consistent with the timings noted. Week 1 begins on Monday August 19 and the course concludes with the final exam period ending December 15.

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Date | Topic | Instructor |
| 1 | August 19 | Course Kickoff/Financial Accounting | Flury/Schneider |
| 2 | August 26 | Financial Accounting | Schneider |
| 3 | September 2 | Financial Accounting | Schneider |
| 4 | September 9 | Finance | Jayaraman |
| 5 | September 16 | Finance | Jayaraman |
| 6 | September 23 | Finance | Jayaraman |
| 7 | September 30 | Mid-Term Exam Week | Flury |
| 8 | October 7 | Supply Chain Management | Myers |
| 9 | October 14 | Supply Chain Management | Myers |
| 10 | October 21 | Supply Chain Management | Myers |
| 11 | October 28 | Marketing | Buchanan |
| 12 | November 4 | Marketing | Buchanan |
| 13 | November 11 | Marketing | Buchanan |
| 14 | November 18 | Business Strategy | Flury |
| 15 | November 25 | Business Strategy | Flury |
| 16 | December 2 | Business Strategy | Flury |
| 17 | December 9 | Final Exam Week | Flury |

## STUDENT GRADING

In order to assess how well students understand the concepts presented in the course and to provide feedback for improvement, students will complete **two exams** and **five** **homework assignments** over the course of the semester. The table below provides the schedule for completing the exams and homework assignments. Generally, the exam period will be seven days from the release of the exam to the class to the date and time that the exam must be completed and submitted. For homework assignments students will usually have up to 10 days from assignment release to required submission. Specific dates and homework “weights” are indicated below and in the course schedule at the class website in Canvas.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Module | Due Date | Weight |
| Homework #1 | Financial Accounting (Individual Assignment) | Monday September 9, 11:59 pm eastern | 5% |
| Homework #2 | Finance (Individual Assignment) | Monday September 30, 11:59 pm eastern | 5% |
| Mid-Term Exam | Financial Accounting and Finance Modules Only | Monday October 7, 11:59 pm eastern | 35% |
| Homework #3 | Supply Chain Management (Team Project) Case: **Optimizing the APAC Epoxy Flooring Supply Chain** | Monday October 28, 11:59 pm eastern | 10% |
| Homework #4 | Marketing (Individual Assignment) Data Analytics Simulation**: Strategic Decision-Making** *(DP: Decision Point)*. Note that simulation grade will be based on entire assignment not the results of any individual decision point. | DP 1 (Trial): Thursday, October 31  DP 1: Sunday, November 3  DP 2: Thursday, November 7  DP 3: Sunday, November 10  DP 4: Thursday, November 14  *All DPs are due 11:59pm eastern* | 5% |
| Homework #5 | Marketing (Team Project) Case: **Advertising Experiments at the Ohio Art Company (5**%) | Sunday November 17, 11:59pm eastern | 5% |
| Final Exam | Supply Chain Management, Marketing, and Business Strategy Modules Only | Saturday December 14, 12:00pm (noon, eastern) | 35% |

### Exams

The mid-term and final exams both have similar formats and all questions are presented as either multiple choice, true/false, or matching. There are no short answer or essay questions on either exam. Both exams are closed book and no notes or formula sheets will be allowed. The final exam only covers modules introduced after the mid-term exam. Both exams will have problems that require calculations and students will be allowed blank scratch paper, and the use of Excel, on-line calculators, and physical calculators. If students use a physical calculator, calculator memories must be cleared before beginning the exam. The course uses Proctortrack for exam proctoring and all flagged exams are manually reviewed. Students will be given the opportunity to practice the Proctortrack on-boarding process prior to taking the mid-term exam. Exam-specific instructions will be provided prior to each exam. In total, exams count 70% of the student’s total course grade.

### Graded Homework Assignments

Graded homework assignments must be submitted for four of the five course modules. Each homework will count either 5% or 10% of the student’s course grade; 30% in total. Unlike exams, homework assignment are open book and students are encouraged to use course and web resources to successfully answer the homework questions. Students are also allowed to collaborate on **individua**l assignments, but cannot share homework answers. By collaboration, the intent is to share methods but not actual calculations or answers. The Financial Accounting and Finance Homework assignments are both problem-oriented and will be submitted through the “Quizzes” function in Canvas. Both of these assignments are individual assignments and count 5% each towards a student’s course grade. Homework assignments for the Supply Chain Management and Marketing modules are case or simulation oriented and are a combination of an individual assignment and team projects. In a team setting team members should work jointly to develop case solutions in both Supply Chain Management and Marketing. Collaboration between teams is not allowed and team projects will be graded in relative to other team projects. Specific grading guidelines for the team projects are provided in the assignment details in the class website in Canvas.

The Supply Chain Management case assignment counts 10% of the student’s course grade; while the Market Case (team) and the marketing simulation count 5% each. In total 15% of a student’s grade will be team based. For team projects all students on a team will receive the same grade (except as noted later in this syllabus). Like the homework assignments in Financial Accounting and Finance, students are encouraged to use web-based resources in addition to course materials. However, students are not allowed to plagiarize existing case studies or web articles related to the specific case questions. Software will be used that detects plagiarism and any plagiarism noted will be considered a violation of Georgia Tech’s Academic Honor Code.  Any evidence of plagiarism will result in a lower team grade and possibly a zero grade if the plagiarism is considered to be extensive.

## VIDEO CONFERENCE CALLS AND THE COURSE FORUMS

Although students are not graded on “participation” in this course, students are expected to be fully engaged by participating (if possible) “live” during the weekly videoconference call, and by posting and responding to posts in the class forums. If a student chooses, they may take this course and pass it simply by just viewing the topic videos, reviewing the pre-reads, answering the self-assessments, and by submitting homework and exams. But taking this approach will not likely result in a high course grade nor will this approach optimize the learning experience. For example, some materials tested on the exams will be presented only in the weekly video conferences and students not exposed to that material will likely have to resort to guessing the correct answers. Also, both the video conference discussions and the conversation posted in the course forums enrich the learning experience. Business courses are most effective when interaction occurs between class members and the instructors.

A weekly schedule for the video-conferences will be posted to the class website in Canvas. Videoconference calls for the Accounting module will be on Tuesdays beginning on August 20. Videoconference calls for Finance, Supply Chain Management, Marketing, and Business Strategy will be on Thursday evenings. All video conferences start at 7 p.m. eastern time and the run time is usually between 1 and 1 1/2 hours. To provide for continuity across the course modules, each video-conference will be hosted by the course coordinator **and** the instructor responsible for the module currently being covered. A TA will also be on the call to monitor the chat room that runs concurrent with the conference call. Each call will be organized around a module lesson, providing additional insights into the material, answering student questions, and, if appropriate to the material being covered, demonstrating how to solve specific problems or develop specific analytical frameworks. Some calls will also feature student participation in class exercises.

Students who cannot attend live because of a schedule conflict or time zone issue will be able to view a recording of the call that will be posted to the class website within 12 hours of the completion of the call.

Students are encouraged to actively participate in the course forums. Participation implies not only posting questions or observations, but also helping out other students by responding to their posts. Students may also post questions directly to the course instructors and TAs. Any instructor-directed questions related to **graded** homework assignments or an individual personal grade situation must be marked “private”. All other posts should be public to allow other students to view and respond. Course forums are monitored throughout the day and early evening (eastern time zone) by course instructors and TAs.

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## INSTRUCTOR EXPECTATIONS

Students are expected to devote 9 to 10 hours per week to complete the course requirements. Time guidelines on average should provide adequate time to view the lesson videos and attend/view the weekly videoconference call, read the course preread materials, complete the homework assignments, and participate in course forum reflections and posted comments. Students, of course, can spend as much time as necessary. However, keep in mind that the student must keep in step with the overall course schedule and be careful not to fall behind.

In this course students mainly participate as individual contributors but as noted earlier do have several team related assignments. As an individual contributor, students should view the topic videos, review lessons readings, compete the self-assessments and other practice problems, attend or view the videoconference call recordings, and actively participate in the course forums. In team activities students are expected to give a balanced effort and contribute equally to the completion of the graded case materials. TAs will be responsible for monitoring team activities and any student that is “free-riding” on the efforts of his/her teammates will be penalized by an individual reduction in that student’s team grade. Students that don’t contribute any value to a team project will receive a zero for that project, regardless of the grade received by the other students on that team.

Students are also expected to use proper etiquette when composing or responding to student or instructor posts in the course forum. Use of derogatory terms or language will not be tolerated. The purpose here is not to stifle free speech but only to emphasize that decorum is expected at all times in the classroom and that those expectations do not change simply because the classroom is now virtual.

The instructors also recognize that students who have never been exposed to a business course may initially find the material frustrating. However, it’s been our experience based on teaching a version of the course on campus for over 20 years, that technology students become increasingly comfortable and engaged; and eventually adept in learning these new concepts.

## COURSE CALENDAR

A complete calendar for the course is provided at the class website in Canvas.

## REQUIRED COURSE PACKS AND OTHER REFERENCE MATERIALS

There are two course packs used by this course but only one course pack is required to be purchased by the students. There are also several public websites that students may find very helpful as they study the concepts and terminology used in this course.

### REQUIRED COURSE PACK:

**HBSP Course Pack Title**: Business Fundamentals for Analytics: Essential Readings and Cases, Fall 2019. Course pack link: <https://hbsp.harvard.edu/import/642746>  **Please make sure to register on the Harvard course pack site with your first and last name as enrolled in the course. This is very important for completing some of the course assignments.**

### OPTIONAL COURSE PACK

**McGraw-Hill Course Pack Title**: Business Fundamentals for Analytics: Business Strategy Module OPTIONAL Readings.  Order Directly from the Link: <https://create.mheducation.com/shop/>  and enter ISBN : 9781307472295 in the search field. Order prior to the start of the Business Strategy module.

Also, students will find the following websites particularly helpful in “decoding” business terminology and in providing more details regarding concepts discussed in the course. A best practice is to bookmark these sites while taking the course.

* [www.investopedia.com](http://www.investopedia.com)
* [www.accountingcoach.com](http://www.accountingcoach.com)
* [www.yahoo.com/finance](http://www.yahoo.com/finance)
* <http://www.netmba.com>
* <http://www.quickmba.com>
* https://onstrategyhq.com/resources/strategic-planning-terms/
* <https://blog.hubspot.com/marketing/inbound-marketing-glossary-list>

## GEORGIA TECH ACADEMIC HONOR CODE

As a student at Georgia Tech you are expected to understand and adhere to the school’s academic honor code. Full details regarding the honor code can be found at this website: <http://honor.gatech.edu/content/2/the-honor-code>

By submitting homework assignments and exams the student is agreeing to the following statement:

“Having read the Georgia Institute of Technology Academic Honor code, I understand and accept my responsibility as a member of the Georgia Tech Community to uphold the Academic Honor Code at all times. In addition, I understand my options for reporting honor violations as detailed in the code.”