SCM 7380: Analytics & Enterprise Operations
Section 15332 Tue 6 - 9 Fall 2020

Instructor: Michael J. Murray, PhD, PE **Office/Phone:** MH 260-G / 713-743-4667
Student Hours: Individual Zoom sessions Tuesday 5 – 6 pm, and by appointment.
Email: Please **use BlackBoard messages** for all course-related correspondence

Course Description

At its core Supply Chain Management is the study of how to run a successful organization. In the same way that becoming successful as an athlete or heart surgeon requires practice to learn important skills and techniques, so too the best way to develop skill in supply chain management is through practice. In this course you will have an opportunity to practice managing the supply chain of a simulated manufacturing company using SAP. Using various business analytic tools and techniques you will analyze your supply chain operations and financial results to discover ways to improve performance. You will then report on your company's performance to its shareholders.

Important information

Course delivery

This course is being offered in the Synchronous Online format. Synchronous online class meetings will take place according to the class schedule. There is no face-to-face component to this course. In between synchronous class meetings, there may also be asynchronous activities to complete (e.g., discussion forums and assignments). It is critical that all students attend the class meetings, as there is a real-time team-based simulation activity scheduled for seven classes. The simulation requires students to make decisions during the exercise, and it is not possible for one or two students to successfully manage the activity of a team.

Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston Undergraduate Excused Absence Policy and Graduate Excused Absence Policy for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Additional policies address absences related to military service, religious holy days, pregnancy and related conditions, and disability.

Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the Center for Students with DisABILITIES. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (state when webcams are required to be on and the academic basis for requiring them to be on). (Example: Webcams must be turned on during exams to ensure the academic integrity of exam administration.)

Resources for Online Learning

The University of Houston is committed to student success, and provides information to optimize the online learning experience through our Power-On website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

Course Objectives

This course supports the MBA program learning goals in the following ways:

- **Communication** – students analyze business issues through written case studies and presentations that develop recommendations for actions with metrics that can gauge the success of the recommendation.
- **Cross disciplinary competence** – sharpen student understanding of how organizations integrate and manage their core business processes across all the functional disciplines.
- **Critical thinking** – students identify the information needed to analyze competitive strategy and apply analytical tools and techniques to improve the performance of a simulated supply chain.

Course prerequisites and textbook

Required: 1) *Integrated Business Processes with ERP Systems*, Magal & Word, ISBN 978-0470-478448. Also, 2) *ERP Simulation Game License & Participant's Guide*, Leger et al. (2020-21) **You will need to purchase this no later than the start of the third class meeting.** I will provide detailed instructions on how to obtain this book/software access code in class (cost is $C 50, ~ $38 US).

Selected case studies available through link on BlackBoard (cost ~ $17).

Assigned readings are available in the Course Reserves section on BlackBoard.

Microsoft Office 2013 or later, including Excel with PowerPivot, Microsoft Power BI, RStudio and R 3.50[1] (free). NOTE: to use most of this software your computer must be able to run in Windows or Windows emulation mode, and have 8+ GB RAM, and sufficient disk storage.

[1] All SAP software will be made available free of charge. A personal version of Microsoft Power BI is available at no charge. Rstudio is free for academic purposes and R is an open-source statistical package.

Course Outline and Organization

Figure 1 (below) illustrates the way this course is organized: 1) learning how enterprise systems enable the consistent and efficient execution of the supply chain core processes; 2) introduction to descriptive, predictive and prescriptive analytics techniques used in supply chain management; and 3) application of business analytics to a competitive simulation with the goal of improving financial performance of your firm (and beating the other teams!).

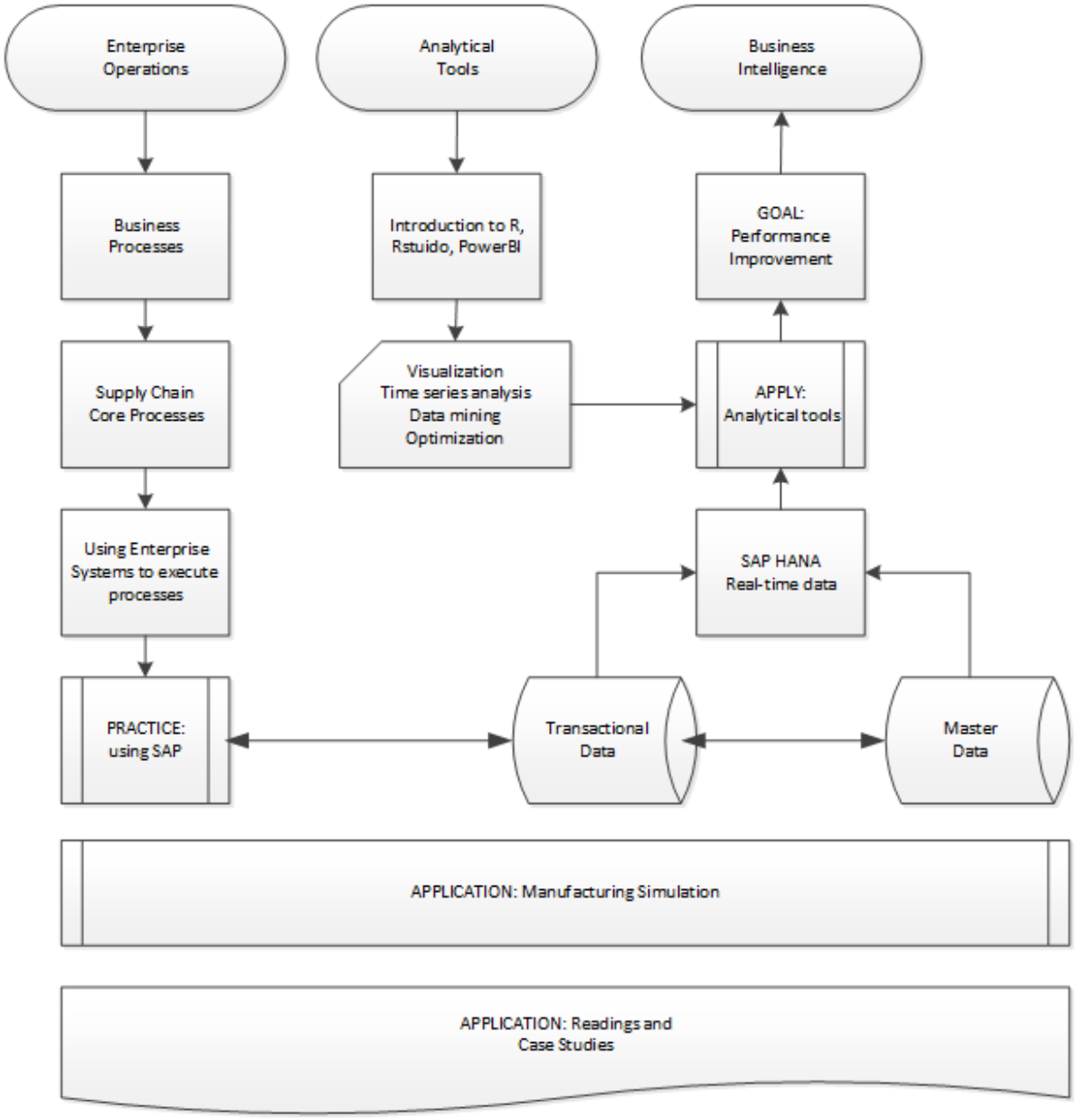

Figure 1: SCM 7380 Enterprise Operations and Business Intelligence Course Outline

Throughout the course we will discuss various readings and case studies that illustrate some of the challenges in developing and executing strategies that incorporate enterprise systems and business intelligence tools. The purpose of the case studies and readings is to help improve your critical analysis skills at identifying and resolving business problems. They also provide a way for you to learn and apply some technical skills that will prove useful in managing supply chains.

When we discuss the case in class you should be prepared to contribute to the discussion as follows: 1) identify the root cause issue(s) of the case, 2) explore alternative courses of action to address those issues, 3) make specific recommendations and 4) *develop a plan of execution and define performance metrics* and other measures that can determine whether or not the recommendations were successful. Participation is included in your case score.

Grading

This course is designed to introduce you to ERP systems using a combination of lectures, business articles and cases, classroom exercises and a business simulation. There are a number of deliverables due during the semester that will be used to assess your learning and understanding of enterprise operations and business intelligence. Each student's final numerical score for the course is weighted 80% on individual effort and 20% on group activities. The course deliverables are weighted as follows:

Item	**Value**
6 Guided practice exercises*	15%
4 Case studies	20%
2 Mid-term exams	40%
Simulation Report & Presentation	25%
Total	**100%**

*Students are allowed to miss/drop one practice exercise without penalty.

The following scale will determine your final grade[2]:

≥ 93	A	80.00 – 83.32	B-
90.00 – 92.99	A-	75.00 – 79.99	C+
86.67 – 89.99	B+	70.00 – 74.99	C
83.33 – 86.66	B	< 70.00	C-

Your purpose in taking this course should be to learn interesting and valuable skills that can help you in your career, not to score points and get a particular letter grade. If you spend more time thinking about grades than about business modeling, then you will not be taking full advantage of the opportunity to learn new concepts and develop your skills.

My role is to structure individual items throughout this course that should provide you with clear and specific feedback on what you are doing well and what you need to improve. Your overall grade, then, should reflect what you have learned in this course, not just be an itemization of the tasks you completed and how well you repeated what was in the textbook or what you read in the case studies or heard in the lectures. If you focus on learning how to analyze supply chain management problems and apply the

[2] Grades are not negotiable. Grades are earned on the basis of performance in this course, not given on the basis of need or effort. I do not reply to email requesting a grade change or extra credit. Note: The instructor reserves the right to assign a grade of "F" in cases of cheating on exams or other violations of academic honesty.

various tools and techniques we cover in this course, then you should have no problem demonstrating to a future employer that you are competent to do the job.

Classroom and Digital Etiquette

Please make every effort to arrive at class on time and to stay until the end of the class. If you do not already have one, please obtain a Gmail account to use for this course. It will be used as your contact account for the simulation license.

While some of the content of this course will be made available as pre-recorded videos it is important for students to remain actively engaged during the lectures and particularly during the simulation exercise. I am well aware that students who work full-time may suffer from Zoom burn-out when it comes time to attend class. I also know that if you are a parent, you are most likely having to spend additional time working with your children on their learning activities. All I ask is that you try to avoid as much distraction as possible during class so that you and your colleagues can get the most out of it.

Academic Integrity

Let me also speak to you frankly about your "value proposition"; in other words, what is the market value of your MBA? Your degree is a reflection not just of your effort at UH, but also the efforts of your classmates. If any student can obtain an MBA by simply coming to class, putting in minimal effort and/or freeloading on homework assignments, then a UH degree will not be very valuable. Employers recognize this because they have to deal with employees who are poorly equipped to do the critical thinking and analysis they need because they only did the minimum to get by. As the perceived value of a UH degree goes down, so too do your long-term career prospects.

Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: "*I understand and agree to abide by the provisions in the University of Houston Graduate Academic Honesty Policy. I understand that academic honesty is taken very seriously and, in the cases of violations, penalties may include suspension or expulsion from the University of Houston."* In particular, the following four principles apply to this class:

- All homework assignments and exams should reflect *your own effort only* (except as noted above for homework assignments where work with other students is documented). Discussion with others from another section about graded submissions is a violation of the Academic Honesty Policy.

- ***Passing case notes and class handouts to students who have yet to take the course, who attend a different section, or receiving material from those who took the class in the past, is strictly prohibited.***

- Plagiarizing (the misrepresentation of work done by others as being one's own work) is a violation of the Academic Honesty Policy. Remember to cite all sources of information and ideas to prevent problems.

- You may *not* submit the same work (or substantially similar work) to meet the requirements of more than one course without the written consent of all instructors concerned.

Teaching Philosophy

My teaching philosophy is based on the goal of leading you to develop skills that will help you achieve success in your professional careers and personal lives. I spent most of my career working in industry and I know first-hand how important it is to have intellectual curiosity matched with an ability to critically analyze the issues faced by organizations large and small. I believe that your education should be focused on more than just learning the contents of the textbooks we use. You must understand and be able to articulate the knowledge you gain before you can apply it successfully.

I will challenge you to think critically about the problems we discuss, and I will help you develop both an intuitive understanding of problems and a systematic approach to solving them. Realizing that all of you have diverse learning styles I will try to engage you in a number of ways to help you gain a better understanding of the subject at hand. For me teaching is an opportunity to provide you with some of the advantages I have received in my education and career, and I consider it a privilege to pass on what I have learned.

Accommodations for Students with Disabilities

My objective is to help all students achieve their highest potential in the Bauer College of Business. If you need to receive accommodation in the classroom, on exams or with assignments, please make arrangements with me prior to the exam or assignment. You can also contact the Justin Dart Center for Students with Disabilities (713-743-5400) in order to obtain assistance. Services provided by the Center for Students with Disabilities include assistance with course accommodations, adaptive equipment, individualized exam administration, taped textbooks, wheelchair repair, library needs, handicapped parking, as well as many other needs.

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. Also, there is no appointment necessary for the "Let's Talk" program, which is a drop-in consultation service at convenient locations and hours around campus. http://www.uh.edu/caps/outreach/lets_talk.html.

Other helpful information

COVID-19 Updates: https://uh.edu/covid-19/

Coogs Care: https://www.uh.edu/dsaes/coogscare/

Laptop Checkout Requests: https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop

Health FAQs: https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/

Student Health Center: https://uh.edu/class/english/lcc/current-students/student-health-center/index.php

Detailed Class schedule

Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through BlackBoard announcements. Given the quantitative nature of this course, it is important that students plan to attend every class in order to gain the most value from the course. Please refer to the detailed summary on BlackBoard for more information regarding the articles and case studies.

SCM 7380 Analytics & Enterprise Operations
Tentative Class Schedule Fall 2020

	Date	Topic(s)	Reading reference/case study	Assignment
August	25-Aug	Course intro & syllabus; descriptive analytics	i: "Competing on Analytics", HBR Jan 2006, vol. 84 no. 1, pp 98 - 107. Data visualization with PowerBI/Lumira/Tableau	GP-01
September	1-Sep	SAP and relational databases, Accounting in SAP	M&W, Ch. 1 - 3	GP-02
	8-Sep	Intro Simulation R1 - fulfillment process	M&W, Ch. 5; Leger et al., Ch. 1 - 2 Using PowerBI/Lumira/Tableau in real-time	GP-03
	15-Sep	Intro to R; predictive analytics	ii: "Supply chain analytics", Business Horizons 2014, vol. 57, pp 595 - 605. Time-series forecasting/ Association analysis	GP-04
	22-Sep	Intro Simulation R2 - production process	M&W, Ch. 6 - 7	GP-05
	29-Sep	Prescriptive analytics; optimization & simulation	Supply chain optimization and simulation/ Introduction to manufacturing simulation	GP-06
October	6-Oct	Intro Simulation R3 - MRP & procurement	M&W, Ch. 4; Financial statement analysis	Prep for assessment
	13-Oct	**Assessment #1: Descriptive and predictive analytics/ SAP fundamentals**		Case analysis
	20-Oct	Extended Simulation R1 & R2	iii: "Keep up with your quants", HBR 2013, vol. 91 issue 7/8 , pp 120 - 123. Case: Necanko, Inc. (Ivey 904D20)	Case analysis
	27-Oct	Extended Simulation R3 & R4	iv: "Minding the Analytics Gap", Sloan Mgt. Rev. 2015, v 56 no. 3, pp 63 -68. Case: Business Intelligence at SYSCO (HBS 9-604-080)	Case analysis
November	3-Nov	Extended Simulation R5 & R6	v: "Lessons from Becoming a Data-driven Organization", Sloan Mgt. Rev/ EY Case Study. Case: Managing with Analytics at P&G (HBS 9-613-045)	Case analysis
	10-Nov	Extended Simulation R7 & R8	vi: "Using BSC as a Strat. Mgt. Sys.", HBR 2007, vol. 85 issue 7/8, p. 150 - 161. Case: Volksvagen do Brasil: Driving Strategy with the Balanced Scorecard (HBS 9-111-049)	Prep for assessment
	17-Nov	**Assessment #2: Business analytics cases, performance management with SAP**		
	24-Nov	*Thanksgiving Holiday - no class*		
Dec	**1-Dec**	**Annual Report Presentations**		

Revised: 8/20/2020