DALHOUSIE UNIVERSITY

BUSI/INFO 6513
BUSINESS ANALYTICS

Fall 2018

Contact Information
Instructor: Kyung Young Lee, Ph.D.
Office: Rowe 5106
Phone: 902 494-3065
E-mail: kyunglee@dal.ca
Office Hours: Monday 11:30-1:30 and Wednesday 13:00 ~ 2:30 or By appointment
Class Times: **Mondays 8:35-11:25am**
Class Location: Rowe 4055

Course Description:
This course provides an introduction to Business Analytics using state of the art technologies. It covers the processes, methodologies and practices used to transform data into useful information to support business decision-making. Business analytics requires foundational knowledge in data Extraction, Transformation and Loading (ETL). The course will cover data models for data warehouses and in-memory systems. Students will learn how to extract and manipulate data from these systems. They will also acquire basic knowledge of data mining and data analysis, with a focus on data visualization. The students will also learn to build dashboards using a variety of data design and visualization tools. The course will be made up of a combination of conceptual and applied topics with classes being held in a computer lab. Both cloud-based and on-premise technologies will be leveraged to analyze data from a variety of sources, including Open Data, SAP BW, Teradata, and SAP HANA. Technologies to be used will be focused on end-user analytics and data visualization and will include state of the art tools for self-serve business analytics such as SAP Lumira Discovery, MS Excel, SAP Cloud Analytics, Tableau, SAP Business Objects Analysis, IBM Cognos Insight, SAP Predictive Analytics, and IBM Watson Analytics.

Approach Taken:
- The emphasis of this class is on experiential learning. The weekly classes will consist of a combination of lectures and hands-on exercises with the latest analytics tools. You will build a portfolio of the tools you learn in this class, which you will be able to leverage to demonstrate to employers what you can do.
- Throughout the term, case problems will be studied and then discussed. Students are required to analyze these cases and provide solutions to the problems faced by the organizations in the case studies. There is an expectation that you complete the readings before each class so you are ready to participate in discussion on the readings.
- As this is a graduate elective course, what you get out of this class is what you put in. Many activities will be adapted to different students' strengths and experiences, with the baseline expectation that everyone must at least master the material in the book. There will always be opportunities to learn more than the baseline, and I will provide you with direction if you so desire.

Learning Objectives:
By the end of the course, students will:
- have an understanding of business analytics tools and how businesses use them
- extract, manipulate and transform data from different sources
- perform some basic data mining and analysis
- generate reports, design dashboards and other visualizations
- apply different concepts and skills in various business contexts using case studies and hands-on exercises with leading software applications

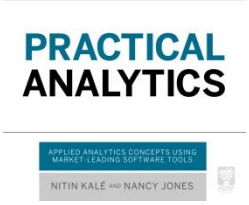
Prerequisites: BUSI 5512 or permission of instructor

SAP University Alliances Student Recognition Award

Over 30% of this course is hands on SAP related. Successful completion of this class will count towards obtaining a SAP University Alliances Student Recognition Award signed by the SAP University Alliances (UA) program manager and the Dean of the Faculty of Management at Dalhousie University. Details will be posted on http://time.rsb.dal.ca.

Required Textbooks & Learning Materials: The textbook is required and is available online

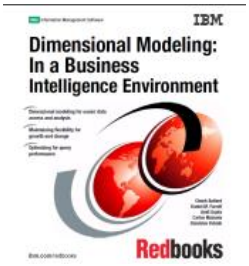
Practical Analytics
Nitin Kalé and Nancy Jones,
Epistemy Press, 2015
ISBN: 9780985600891



http://epistemypress.com/books/practical-analytics/

NO MORE SECRETS with Big Data Analytics
Erik van Ommeren, Sander Duivestein, Jaap Bloem, Menno van Doorn, and Thomas van Manen
Published by Sogeti
Publication year 2013

There will be a section assigned from this, but the whole book is worth browsing through.
Free download from https://ict-books.com/books/inspiration-trends/nomoresecrets-pdf-detail



Dimensional Modeling: In a Business Intelligence Environment
Chuck Ballard, Daniel M. Farrell, Amit Gupta, Carlos Mazuela, Stanislav Vohnik
IBM Redbooks, 2006

There will be one chapter of this assigned, but the whole book is a good reference
Free download from : http://www.redbooks.ibm.com/abstracts/sg247138.html

There will be additional learning materials, readings and cases and links to software posted in Brightspace.

This class uses software obtained through the the SAP University Alliances (http://scn.sap.com/community/uac) as well as other vendors such as the IBM Academic Initiative and the Teradata University Network (http://www.teradatauniversitynetwork.com/).

Tentative Course Schedule Fall 2018

Week	Date[1]	Topic	Hands-On Exercises [2]	Reading Material[3] / Dues	Quiz[4]
1	Sep 10	Overview of BI, analytics and decision support	SAP Business Objects Explorer, Pivot Tables	PA ch 1 Data Analytics Overview	
2	Sep 17	Data Acquisition, Data Wrangling	IBM Watson Analytics, Open Data Wrangling with SAP Lumira Discovery	PA ch 2 Data Acquisition Open Data Sets *Group formation (3 students)*	
3	Sep 24	Data Modelling & ETL	BEx Query Designer SAP BusinessObjects Analysis for MS Office	PA ch 3 Dimensional Data Modeling PA ch 4: ETL	Ch. 1-4
	Sep 28	*Group Project Proposals due in Brightspace 11:59 PM*			
4	Oct 01	Data cubes Data processing (OLAP)	IBM Cognos Insight	PA ch 5: Slicing and Dicing Dimensional Modeling IBM Redbook: Chapter 4	
	Oct 05	*Toolkit Portfolio Draft Chapters 1-3 Due in Brightspace 11pm*			
5	Oct 15	Business Reporting, and Performance Management	SAP Crystal Report SAP Analytics Cloud (Tentative / If available)	PA ch 6: Reporting EY-Forbes-Insights-Data-Analytics-Impact	Ch 5-6
6	Oct 22	Dashboards and Visualization - 1	Tableau Basics and Dashboard / Data Manipulation for Analysis using Tableau	Materials on Brightspace https://public.tableau.com/en-us/s/resources	
7	Oct 29	Dashboards and Visualizations - 2	SAP Predictive Analytics SAP Business Objects Design Studio	PA ch 7-9 Basic Data Visualization, Dashboards and Advanced Visualization SAPL-DataViz Handbook	Ch 7-9
	Nov 02	*Toolkit Portfolio Draft Chapters 4-6 Due in Brightspace 11pm*			
8	Nov 05	Text, Web, and Social Analytics	Facebook Analytics (Demo) Other Hands-on SW TBA	NMS Part III: Big Social – Predicting Behavior with Big Data (pp.87-127)	
	Nov 12	Study Break – ASUG Meeting (TBA)			
9	Nov 19	Data Mining Big Data Analytics	SAP Predictive Analytics SAP Predictive Analytics with Big Data	PA ch 10-12 Data Mining, Descriptive Models for Data Mining, Predictive Model for Data Mining	Ch 10-12
10	Nov 26	Data Mining with In-Memory Technologies	SAP HANA and Predictive Analysis and Graph Processing	PA ch 13 ~ 14 Big Data Analytics / Analytics in Practice / Rexar Analytics 2015 Survey	
11	Dec 03	Business Analytics: Emerging Trends and Future Directions	Geospatial Analytics with SAP Lumira Discovery (Or Predictive Analytics), ESRI and in SAP HANA	A Tutorial on Geographic Information Systems	Ch 13-14
12	Dec 04	*Project Presentations & Project Reports Due before class*			
	Dec 11	*Completed BI Toolkit Portfolio Due at 11pm*			

PA= Practical Analytics / NMS=NO MORE SECRETS with Big Data Analytics

Grade Scale

[1]This schedule is subject to change depending on unforeseeable circumstances such as weather or IT issues
[2]These tools are planned, but may change due to technical issues or as newer tools become available
[3]There may be additional reference materials posted to Brightspace throughout the semester.
[4]Quizzes are at the beginning of class; 15 minutes long.

Grading Scale as per Dalhousie Faculty of Graduate Studies Calendar Regulation 6.6.2 Grading Policy	
Letter Grade	Numerical % equivalent
A+	90 - 100
A	85 - 89
A-	80 - 84
B+	77 - 79
B	73 - 76
B -	70 - 72
F	0-69

NOTE: As per FGS regulations students must obtain a final course grade of 70% (B-) or higher to pass the course.

Grading Schema

Marking Scheme	
BA Toolkit Portfolio	
Portfolio Chapter 1-3 Draft	**10%**
Portfolio Chapter 4-6 Draft	**10%**
Finished BI Toolkit Portfolio	**20%**
Group Project	
Project Proposal	**5%**
Group Project Presentation	**10%**
Project Report	**20%**
Quizzes (x5)	**25%**
Total	**100%**

BA Toolkit Portfolio (40%)
Throughout the semester we will be learning skills using a variety of state of the art business analytics tools which are highly sought after by employers. The class will complete challenging exercises that will give you an insight as how these tools can be used to solve analytics problems. You will reflect on these experiences after class by creating a Business Analytics Toolkit Portfolio, which ultimately should be something you can show to an employer as evidence of the skills you obtained in the course. You should keep this up to date so that at a moment's notice you can show it to a potential employer during a job interview.

The format of your BA Toolkit Portfolio will be 10 chapters, where each chapter is 4 professional looking, single spaced pages *with annotated screenshots of your work, with explanations of what you did, descriptions of the tools that you used, as well as your personal reflection of how well the tool is suited for the job at hand*. You will submit a draft chapters 1-3 on Oct 5th and a draft of chapters 4-6 on Nov 2nd by 11pm, each submission is worth 10%.

At the end of the term, you will package all 10 revised chapters with a 2 page executive summary and table of contents and submit the completed portfolio for grading. The finished portfolio is worth 20% of your final grade and is due in Brightspace on December 11th by 11pm.

Group Project (35%) – Group of 3
The purpose of the group project is for you *to seek out and compare a different tool to the ones learned in the class*. For this, you will merge at least 2 datasets that you find interesting from outside the class and then process and analyze it with the new tool as well as one that we learned in class.

For this group project you will deliver a presentation (worth 10%) at the end of the semester, as well as a report (worth 20%) which *describes the datasets, insights from the dataset (your findings), the tools, and then gives a detailed comparison which tool is better*. The length of the report is 10 single-spaced pages for a group of 2 or 15 pages for groups of 3 students (including charts, graphs, tables, appendices, etc., but excluding references). Both are due before class on December 4th.

Tools and datasets will be subject to approval. You will email me your proposed tools any time, and in the case of multiple groups proposing the same tools, then I will assign them on a first come-first serve basis. Your group will submit a formal 2-page project proposal before the midnight of September 28th, outlining the research questions, briefly explaining how you will use the tools, describing the data sets you hope to use and listing a table of contents for your report. This proposal is meant to guide your group to a successful project and will be graded out of 5 marks based on completeness, ambition, feasibility and clarity.

Quizzes (25%)
There will be 5 in-class quizzes covering the material from the Textbook. Each will be 15 minutes long and will consist of a combination of true or false, or multiple choice type questions. The quizzes are each worth 5% of your final grade and are closed book.

Policy concerning late or missed portfolios, reports, or presentations
All deliverables are due on the date indicated and must be submitted through Brightspace assignment submission tool. There is no penalty on early submissions. Late deliverables cannot be accepted without appropriate documentation.

Food and Drink
Food and drinks are not permitted in the Computer Lab.

Important School Policies

Accreditation
As an AACSB (Association to Advance Collegiate Schools of Business) accredited university, Dalhousie University's business programs are subject to Assurance of Learning (AOL) standards. During the semester anonymous data may be collected to assess if AOL goals and objectives are being met. The data collected will be used for program improvement purposes only and will not impact nor be associated with student grades

Drop dates:
Last day to add/drop classes – September 18, 2018
Last day to drop without a "W" – October 1, 2018
Last day to drop with a "W" – October 30, 2018

Certificates of illness:

Medical notes must be submitted to the MBA Program office or Professor, whichever you prefer. Please note that it is a university regulation that medical notes will not normally be accepted after a lapse of more than one week from the examination date.

Students requiring accommodations:

Students may request accommodation as a result of barriers experienced related to disability, religious obligation, or any characteristic protected under Canadian human rights legislation. More information is available here.

Academic Integrity

In general:
The commitment of the Faculty of Management is to graduate future leaders of business, government and civil society who manage with integrity and get things done. This is non-negotiable in our community and it starts with your first class at Dalhousie University. So when you submit any work for evaluation in this course or any other, please ensure that you are familiar with your obligations under the Faculty of Management's Academic Integrity Policies and that you understand where to go for help and advice in living up to our standards. You should be familiar with the Faculty of Management Professor and Student Contract on Academic Integrity, and it is your responsibility to ask questions if there is anything you do not understand.

Dalhousie offers many ways to learn about academic writing and presentations so that all members of the University community may acknowledge the intellectual property of others. Knowing how to find, evaluate, select, synthesize and cite information for use in assignments is called being "information literate". Information literacy is taught by Dalhousie University Librarians in classes and through Dalhousie Libraries' online Citing & Writing tutorials.

Do not plagiarize any materials for this course. For further guidance on what constitutes plagiarism, how to avoid it, and proper methods for attributing sources, please consult the University Secretariat's Academic Integrity page.

Please note that Dalhousie subscribes to a plagiarism detection software that checks for originality in submitted papers. Any paper submitted by a student at Dalhousie University may be checked for originality to confirm that the student has not plagiarized from other sources. Plagiarism is considered a very serious academic offence that may lead to loss of credit, suspension or expulsion from the University, or even the revocation of a degree. It is essential that there be correct attribution of authorities from which facts and opinions have been derived. At Dalhousie, there are University Regulations which deal with plagiarism and, prior to submitting any paper in a course; students should read the Policy on Intellectual Honesty contained in the Calendar.

Furthermore the University's Senate has affirmed the right of any instructor to require that student assignments be submitted in both written and computer readable format, e.g.: a text file or as an email attachment, and to submit any paper to a check such as that performed by the plagiarism detection software. As a student in this class, you are to keep an electronic copy of any paper you submit, and the course instructor may require you to submit that electronic

copy on demand. Use of third-party originality checking software does not preclude instructor use of alternate means to identify lapses in originality and attribution. The result of such assessment may be used as evidence in any disciplinary action taken by the Senate.

Finally:
If you suspect cheating by colleagues or lapses in standards by a professor, you may use the confidential email: managementintegrity@dal.ca which is read only by the Assistant Academic Integrity Officer.

Faculty of Management clarification on plagiarism versus collaboration:

There are many forms of plagiarism, for instance, copying on exams and assignments. There is a clear line between group work on assignments when explicitly authorised by the professor and copying solutions from others. It is permissible to work on assignments with your friends but only when the professor gives you permission in the specific context of the assignment. University rules clearly stipulate that all assignments should be undertaken individually unless specifically authorised.

Specific examples of plagiarism include, but are not limited to, the following:

- Copying a computer file from another student, and using it as a template for your own solution
- Copying text written by another student
- **Copying screenshots of another student**
- Submitting the work of someone else, including that of a tutor as your own

An example of acceptable collaboration includes the following:

- When authorised by the professor, discussing the issues and underlying factors of a case with fellow students, and then each of the students writing up their submissions individually, from start to finish.

Statement on the Use of Scented Products

Dalhousie University and the organizations which represent students, faculty and other employees support the efforts of the Dalhousie University Environmental Health and Safely Committee to create a scent-free University. In consideration of the difficulties that exposure to these products cause sensitive individuals, the University encourages faculty, staff, students and visitors to avoid the use of scented personal care products. Thank you for helping us all breathe easier!