

**FACULTY COUNCIL
SCHULICH SCHOOL OF BUSINESS**

A meeting of the Schulich Faculty Council for the 2016/2017 academic year will be held on
Friday April 21st 2017 at 11:30 am in SSB E111.

AGENDA

	Pages
1. Welcome & Chair's Remarks	
2. Enquiries & Communications	
a) For Information: Senate Synopsis (2017.03.23)	3-5
3. Dean's Remarks	
4. PHD/GBC/UBS Initiatives	
5. PhD Program Committee	
a) Motion: PhD Program Change	6-10
6. Master Programs Committee / Programs Coordinating Committee	
a) Motion: EMBA in India (EMPI) Program Change	11-27
b) Motion: MBAN Program Change	28-45
c) Motion: New Course Proposal for MBAN 5140 3.00 – Visual Analytics and Modelling	46-60
d) Motion: New Course Proposal for MBAN 5210 3.00 – Predictive Modelling II	61-72
e) Motion: New Course Proposal for MBAN 5330 3.00 – Big Data Fundamentals and Applications	73-88
f) Motion: Change to Diploma in Intermediate Accounting (DIAC)	89-94
g) Motion: New Course Proposal for MSTM 6000 3.00 – Enterprise Consulting Project	95-116
h) Motion: Guidelines on Major versus Minor Course Changes	117-118
i) For Discussion: Draft Revisions to Guidelines and Policy on Grading	119-122
7. Programs Coordinating Committee / Research & Library Committee	
a) Motion: Guidelines and Policy on Using Courses to Recruit Students as Research Subjects	123-126
8. EMBA Program Committee	
a) Motion: New course proposal for EMBA 6540 2.00 - Designing Brand Experiences	127-137
9. Adjournment	

CONSENT AGENDA

A consent agenda item is deemed to be approved unless, prior to the commencement of the meeting, a member of the council advises the Chair, James McKellar, of a request to debate it.

	Pages
1. Master Programs Committee / Programs Coordinating Committee	
a) Curricular Changes	
1. HIMP 6110 3.00 – Understanding the Canadian Health Industry (title & description)	138-152
2. HIMP 6130 3.00 – Strategic Management of Hospitals (title & description)	153-166
3. HIMP 6180 3.00 – Innovation and Change across the Health Industry (title &	167-184

	description)	
	4. MBAN 5110 3.00 – Introduction to Predictive Modelling (title)	185-193
	5. MBAN 5120 3.00 – Data Management & Programming I (title & credit value)	194-202
	6. MBAN 5150 3.00 – Skills for Leadership (course retirement)	203-205
	7. MBAN 5220 3.00 – Data Management & Programming II (course retirement)	206-208
	8. MBAN 5250 1.50 – Analytics Consulting (course retirement)	209-211
	9. MBAN 6090 9.00 – Major Research Project (title, description & credit value)	212-222
	10. MBAN 6110 3.00 – Data Science I (title)	223-233
	11. MBAN 6120 3.00 – Data Science II (title & description)	234-244
2.	EMBA Program Committee	
	a) New Course Proposal for EMBA 6570 2.00 – Biases, Forecasts and Deep Uncertainty	245-254
	b) New Course Proposal for EMBA 6580 2.00 – Leading Innovation in Emerging Markets	255-259
	c) New Course Proposal for EMBA 6590 2.00 – The Analytics Edge	260-265
	d) Curricular Change for EMBA 6170 2.00 – Marketing Analytics (title & description)	266-282
3.	Minutes of the Last Meeting (2017.03.17)	283-286



The Senate of York University

Meeting Synopsis

The 633rd Meeting of Senate
held on Thursday, March 23, 2017

Remarks

Senators joined the Chair of Senate, Professor Lesley Beagrie, in congratulating Provost Rhonda Lenton on her appointment as President beginning July 1, 2017. The Chair is committed to ensuring that the transition is smooth and successful. Members of the Presidential Search Committee elected by Senate were thanked for their dedication and commitment. The Chair also acknowledged the many contributions to Senate by Vice-President Finance and Administration Gary Brewer, attending his last meeting as a Senator. There was much to celebrate on Red and White Day, and a discussion of the University Academic Plan's priorities for an Enhanced Campus Experience during the meeting demonstrated that York continues to grow and thrive in significant ways.

Drawing attention to a statement issued with the Provost, York's President, Dr Mamdouh Shoukri, reiterated his conviction that intolerable expressions of hate require vigilance. He called on the community to resist any and all efforts to silence, marginalize and exclude, and to embrace values that are fundamental to society, the academy and to the University. He also commented on the following matters:

- postsecondary education aspects of the March 22 federal government budget and the expectation that additional measures await greater certainty about the overall economic outlook
- recent survey results showing that the brand campaign has improved York's reputation among parents and prospective students
- the sterling career at York of Vice-President Brewer and his efforts to ensure that financial planning was tied to Senate-approved plans and initiatives

The Statement on Incidents of Hate Graffiti can be accessed from this link

<http://president.yorku.ca/2017/03/statement-from-president-shoukri-and-provost-lenton-on-incidents-of-hate-graffiti/>

The President's March Kudos Report is accessible with other documents posted for the meeting.

In response to numerous expressions of gratitude, Vice-President Brewer spoke of his appreciation to Senators and committee members for their thoughtful input, especially with regard to aligning academic and budget planning. He will urge his successor to engage with Senators in order to benefit from their input.

Planning Reports

Under the auspices of the Academic Policy, Planning and Research Committee (APPRC), Provost Rhonda Lenton provided an update on planning for the Markham Centre campus.

The Senate of York University

Meeting Synopsis

Facilitated Discussion: University Academic Plan Priority Area 5

In the third of a series of “spotlight” discussions of priority areas in the University Academic Plan sponsored by APPRC, Vice-President Finance and Administration Brewer presented on processes and key initiatives that related to the constituent goals of priority area 5: *Enhanced Campus Experience*.

Notice of Motion: Senate Membership 2017-2018 to 2018-2019

At the first stage of a statutory motion, Senate received notice of Senate Executive’s recommendations concerning Senate membership from July 1, 2017 to June 30, 2019.

Research and Teaching Awards

Senators joined the Chair of the Awards Committee, Professor Robert Kenedy, in congratulating the following recipients of prestigious awards:

- President’s Research Excellence Award: Anne Russon, Psychology, Glendon
- President’s Emerging Research Leadership Award: Amro Zayed
- President’s University-Wide Teaching Award for Senior Full-Time Faculty Members: Andrea Davis, Humanities, Liberal Arts and Professional Studies
- President’s University-Wide Teaching Award for Full-time Faculty: Alex Czekanski, Mechanical Engineering, Lassonde
- President’s University-Wide Teaching Award for Contract and Adjunct Faculty: Véronique Tomaszewski, Sociology, Glendon
- President’s University-Wide Teaching Award for Teaching Assistant: Sabina Mirza (PhD Program in Education), Sociology and Social Science, Liberal Arts and Professional Studies

Curriculum Approvals

On recommendations made by the Academic Standards, Curriculum and Pedagogy Committee (ASCP), Senate approved the

- establishment of an Honours Minor Degree Option in Arts, Media, Performance and Design, School of Arts, Media, Performance and Design
- restructuring of the BA Program in Mathematics for Commerce, Department of Mathematics & Statistics, Faculty of Science
- establishment of a Professional Certificate in Actuarial Science, Department of Mathematics & Statistics, Faculty of Science
- addition of a Stream in Media Arts within the BFA program in Film, Department of Cinema and Media Studies, School of the Arts, Media, Performance and Design
- establishment of new Degree Options within and changes to Requirements for the BSc program in BioChemistry, Faculty of Science

The Senate of York University

Meeting Synopsis

Committee Information Items

Senate Executive reported on the following items:

- its concurrence with recommendations from the Sub-Committee on Honorary Degrees and Ceremonials resulting in the addition of six individuals to the pool of prospective honorary degree recipients
- a confidential recommendation from the *ad hoc* group considering the re-appointment or appointment of the Chancellor
- Senate committee vacancies
- the lack of impact on academic activities of the strike by Aramark employees

APPRC reported that it is nearing the conclusion of its meetings with the Deans, Principal and University Librarian and expects to report on the discussions this spring.

ASCP reported that it had approved the following minor changes to curriculum and degree requirements:

Health

- minor changes to degree requirements for BA and BSc Global Health programs
- corrections to the degree requirements for the BSc program in Psychology

Science

- minor changes to requirements for the Honours Minor BSc Biology program
- minor changes to requirements for the Specialized Honours BSc Physics program
- minor changes to requirements for the Pharmaceutical and Biological Stream within the Honours BSc program in Chemistry

APPRC and ASCP conveyed the most recent report of the Joint Sub-Committee on Quality Assurance and Final Assessment Reports along with Final Assessment Reports for recently completed Cyclical Program Reviews.

Additional Information about this Meeting

Please refer to the full Senate agenda and supplementary material posted online with the March 23, 2017 meeting for details about these items.

<http://secretariat.info.yorku.ca/senate/meeting-agendas-and-synopses/>

April Meeting of Senate

Senate's next meeting will be held at 3:00 p.m. on **Thursday, April 27, 2017**.

Change to Program/Graduate Diploma Academic Requirements Proposal Template

1. Program/Graduate Diploma:

PhD in Business Administration;

2. Effective Session of Proposed Change(s):

September 2017

3. Proposed Change(s) and Rationale: Please provide a description of the proposed change(s) and rationale, including alignment with academic plans.

What is changing?

1. Admission requirements are being revised to convey that not only students with masters degrees in business fields, but also those with degrees in relevant foundational fields are eligible for admission.
2. Degree requirements are being revised to eliminate minor fields of study and to convey that students must take courses in both their major field of study and in methodology. In lieu of requirements that students take minors, it is now required that students take electives in topics related to the major field of study, subject to the approval of the faculty member who coordinates doctoral studies in the student's major area of study.
3. The minimum number of core courses in the major field is being reduced from five to four, to reflect current practices across the areas.
4. Language and cognate requirements are being eliminated as a separate requirement. Previously, "knowledge of statistics or computing methods or another cognate subject" was listed as an alternative to a reading knowledge of a foreign language. Now, courses in relevant methodologies are included as part of coursework requirements.
5. Dissertation proposal and oral defence is being added as a formal requirement. Previously, it was mentioned as one of the four stages in the program, but was not separated out as a requirement

Why are the program requirements changing?

Over the years since our doctoral program was founded, there have been profound changes in the nature of the scholarly research conducted by business school academics. This research has transitioned from being more descriptive to being more theoretically rigorous. Commensurate changes in the doctoral education have been required, and our program's practices, like those of our peers, have been evolving. It is timely to update our admission and program requirements to reflect contemporary practice that is required to educate our doctoral students in a manner that equips them successfully compete for jobs in other leading business schools.

How does the program align with current academic plans?

The program requirements are in line with the academic plans of the faculty, which strives to have a doctoral program that is successful in attracting highly qualified applicants and in training them so that they can compete effectively for jobs in academe and elsewhere.

Overview of the consultation undertaken with relevant academic units and an assessment of the impact of the modifications on other programs/graduate diplomas

The Ph.D. committee is composed of representatives of each major area. The committee met in Fall 2016 to discuss the current admission and degree requirements as reflected in the FGS calendar copy. It agreed on revised admission and degree requirements more aligned with current practices in our program and in other programs.

There is no impact of these modification for other programs/graduate diplomas.

d) A summary of any resource implications and how they are being addressed.

(Attention should be paid to whether the proposed changes will be supported by a reallocation of existing resources or if new/additional resources are required. If new/additional resources are required, the proposal must include a statement from the relevant Dean(s)/Principal.)

No new resources are required to make these changes.

e) A summary of how students currently enrolled in the program/graduate diploma will be accommodated.

All students currently enrolled in the program are on track to meet the academic requirements outlined in the proposed program requirements.

4. Calendar Copy

ADMINISTRATION

DOCTOR OF PHILOSOPHY PROGRAM

The doctoral program in Administration at the Schulich School of Business, York University offers outstanding students the opportunity to develop the theoretical and methodological skills that will enable them to conduct leading edge research in business. Graduates of the program have gone on to successful careers in universities, government and industry, in Canada and in other countries.

The doctorate is an individualized program of study which is composed of the four tightly-linked phases of study. Students first take a series of core courses to acquire in-depth knowledge of the field in which they choose to major. These core courses also help develop the skills and competencies necessary to conduct research. Second, candidates complete a comprehensive examination to test mastery of their major field. The third phase of the PhD program consists of the preparation of the formal research proposal. Then students go on to conduct the research which will be reported in their dissertation, the culmination of the PhD degree.

ADMISSION REQUIREMENTS

Graduates with a Master of Business Administration or a Master of Public Administration degree (equivalent to those awarded by York University) from a recognized university may be admitted as candidates.

Exceptional graduates with a master's degree in a related discipline from a recognized university, and graduates with a four-year honours undergraduate degree in business administration, or its equivalent, from a recognized university, may be considered. These candidates will be required during the first academic session (12 months) to follow a program of study designed to raise their qualifications to the equivalent of graduates of York University with MBA or MPA degrees. Normally this competence is established by taking Master's degree courses in at least five of the subjects of Economics, Quantitative Analysis, Organizational Studies, Accounting, Finance, Marketing, and Management Policy.

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The doctorate is an individualized program of study that is composed of the four tightly-linked phases of study. Students first take a series of core courses and elective to acquire in-depth knowledge of the field in which they choose to major. These courses also help develop the skills and competencies necessary to conduct research. Second, candidates complete a comprehensive examination to test mastery of their major field. The third phase of the PhD program consists of the preparation of the formal research proposal, which must be defended. Then students go on to conduct the research which will be reported in their dissertation, the culmination of the PhD degree.

ADMISSION REQUIREMENTS

Graduates with a relevant masters degree from a recognized university may be admitted as candidates. While masters degrees in business administration or in a subfield thereof are considered relevant, so too are masters in fields such as economics, mathematics, sociology, psychology, depending upon the individual's proposed major field of study. Exceptional graduates with a four-year honours undergraduate degree in business administration or a related field, from a recognized university, may be considered. These candidates may be required during the first academic session (12 months) to take courses to fill gaps in their knowledge of the business discipline corresponding to their major field of study.

All applicants to the PhD program must meet the general admission requirements of the Schulich School of Business, the Faculty of Graduate Studies, and the University Senate. These general requirements include a four-year honours undergraduate degree from a recognized University, or qualifications accepted as equivalent by the Senate Committee,

All applicants to the PhD program must meet the general admission requirements of the Schulich School of Business, the Faculty of Graduate Studies, and the University Senate. These general requirements include a four-year honours undergraduate degree from a recognized University, or qualifications accepted as equivalent by the Senate Committee, and a basic understanding of calculus, linear algebra and analytic geometry at the university level. Applicants are also required to sit for the Graduate Management Admission Test (GMAT), or the Graduate Record Examination (GRE).

In addition, students who have not graduated from a university where the language of instruction is English are required to demonstrate competence in the English language. Usually such students take the Test of English as a Foreign Language or International English Language Testing System.

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DEGREE REQUIREMENTS

Candidates for the PhD degree must complete studies in three fields; one field shall be designated as the major field and the other two as minor fields. The major field must be selected from among accounting, organizational studies, finance, management policy, marketing, operations management and information systems. The minor fields may include other disciplines within the Schulich School of Business, or may, with permission of the Graduate Program Directors concerned, be taken in other graduate programs.

Candidates for the PhD degree must fulfil the following minimum requirements:

1. Courses

Students must successfully complete the following course requirements:

- (a) A core of courses designed to support necessary research skills training.
- (b) The equivalent of five term courses in the major field.
- (c) The equivalent of at least two term courses in each of two minor fields.

These courses will normally be chosen from those offered at the 6000- or 7000-level at the Schulich School of Business. With permission, some may be chosen from

DEGREE REQUIREMENTS

Candidates for the PhD degree must complete studies in one of the following major fields: accounting, organizational studies, finance, marketing, operations management and information systems. They must also complete a series of methodological courses relevant to that major field.

Candidates for the PhD degree must fulfil the following minimum requirements:

1. Courses

Students must successfully complete the following course requirements:

- (a) A core of courses designed to support necessary methodology training.
- (b) A minimum of four courses in the major field.
- (c) A minimum of two electives in topics related to the major field, approved by the PhD program coordinator in the candidate's major field of study.

These courses will normally be chosen from those offered at the 7000-level at the Schulich School of Business. With permission, some may be chosen from those offered at the graduate level by other graduate programs or at other academic institutions.

those offered at the graduate level by other graduate programs.

2. Comprehensive Examinations

Each student must pass a comprehensive examination before proceeding to formal work on her or his dissertation. Comprehensive examinations are designed to demonstrate competence and knowledge in the field. The examination is set and administered by the faculty within the student's major field.

The Faculty regards the comprehensive examination as a pivotal point for deciding whether students should be allowed to proceed with their studies or be encouraged to withdraw from the program.

3. Language and Cognate Requirements

Candidates must satisfy the language or cognate requirements of the Schulich School of Business by demonstrating either:

- (a) a reading knowledge of a foreign language; or**
- (b) a knowledge of statistics, or computing methods, or another cognate subject in so far as these are deemed necessary for the conduct of the candidate's research.**

4. Dissertation and Oral Examination

Candidates must prepare a dissertation based on original research carried out under the supervision of a supervisory committee and submit the results in appropriate dissertation form. After the formal submission of the dissertation, an oral examination is held. It is expected that all or part of the dissertation will be published following professional or scientific review.

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The Faculty regards the comprehensive examination as a pivotal point for deciding whether students should be allowed to proceed with their studies or be encouraged to withdraw from the program.

3. Dissertation Proposal and Oral Defence.

Candidates must prepare a written proposal to conduct original dissertation research carried out under the supervision and a supervisory committee, and must defend this to the satisfaction of the thesis supervisory and members of the supervisory committee.

4. Dissertation and Oral Examination

Candidates must prepare a dissertation based on original research carried out under the supervision of a supervisory committee and submit the results in appropriate dissertation form. After the formal submission of the dissertation, an oral examination is held. It is expected that all or part of the dissertation will be published following professional or scientific review.

Change to Program/Graduate Diploma Academic Requirements Proposal Template

The following information is required for all proposals involving a change to program/graduate diploma academic requirements, including admission requirements. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program/Graduate Diploma:

Executive MBA Program in India – EMPI

2. Effective Session of Proposed Change(s):

Jan. or Sep. 2018

3. Proposed Change(s) and Rationale

The description of and rationale for the proposed change(s) should provide information with respect to each of the following points. Please provide:

a) A description of the proposed change(s) and rationale, including alignment with academic plans.

The program as approved by the Senate on May 24, 2012, consists of 24 (2-credit) courses, delivered over twelve intensive week-long residential sessions. Eight of those sessions were to be delivered in York's Hyderabad campus, 2 sessions in York's Toronto campus, 1 session in a partner university campus in the UK and 1 session in a partner university campus in China (see Appendix 1). The program, as originally conceived and approved, aimed to attract mid-career managers from the Southeast Asia region. Like students in the Kellogg-Schulich (KS) EMBA program, students would enroll in the program and complete it through intensive sessions while continuing to carry their full time employment responsibilities.

As Schulich is preparing to start offering the program, extensive consultations (over 60 in-person interviews at 30 different companies) were conducted over the last twelve months with potential students (mid-career executives), corporate leaders (CEOs, division executives and the like) as well as heads of the Human Resources divisions of domestic and multinational corporations. We presented and discussed the various elements of the program and actively solicited their comments, feedback and reactions. Those consultations have generated a number of insights which, in part, lead to the proposed modifications. In particular, since most students will be Indian nationals, a greater international orientation is needed. The currently approved program was envisioning three off-site sessions in Toronto and at partner institutions in the UK and China. The new version adds partner institutions in Brazil, China, Europe and South Africa. Please note that KS EMBA students also enjoy access to electives delivered by the six partner institutions (including Kellogg and Schulich) that form the Kellogg EMBA partnership.

At the same time, it makes sense to take into account the latest experiences collected through the Kellogg-Schulich EMBA program, which has also undergone curricular changes over the past

few years. These changes include a closer alignment of both core courses and electives between the two programs.

In summary, the proposed modifications include the following:

- a. Alignment of the curriculum structure with that of the KS EMBA program, including a rebalancing of core and elective courses; and*
- b. An increase in the international orientation of the program in terms of where some of the courses are taught and exposure of the participants to the business practices in diverse global economies.*

These changes align with both Faculty and University objectives. The start of the EMPI will help increase graduate enrolment and support the University's internationalization objective. The major capstone project is consistent with the University's spirit of experiential learning in education in general and specific elements identified in the University's Academic Plan. It also furthers the University's quest for community engagement. Finally, it supports the aim for high quality programming through the means of experiential learning. It aims to educate future managers through challenging them with real managerial problems faced by an organization where such problems have strategic significance, draw on multiple management disciplines, do not have obvious or unique solutions, and rest on and impact different parts of the organization and its environment. Students will also practice the validation or refutation of hypotheses through the collection and triangulation of relevant qualitative and quantitative primary and secondary data, develop actionable recommendations, and deliver reports and presentations to the faculty and executives of the organization in question. It should be noted that the University's policies relating to Human Research Participants as they are currently applied for the Strategy Field Studies and the Global Leadership Program of the MBA program at Schulich will also be followed for these major projects.

b) An outline of the changes to requirements and the associated learning outcomes, including how the proposed requirements will support the achievement of program/graduate diploma learning objectives.

Overview of Program Requirements

Existing Program	Revised Program
<i>16 credits of core courses (9 courses)</i>	<i>28 credits of core courses (11 2-credit courses and a 6-credit Applied Integrative Field Study)</i>
<i>32 credits of advanced topics (of which many are actually core), including the 6-credit Applied Integrative Field Study</i>	<i>20 credits of electives (10 2-credit courses or equivalent)</i>
Total: 48 credits	Total: 48 credits

The revised program consists of 21 2-credit courses (or equivalent if higher-credit electives are offered) plus a 6-credit capstone experiential course, for a total of 48 credits (the existing program also requires 48 credits and 21 courses; please see Appendix 1 for current program

structure and Appendix 2 for the proposed program structure). Among those courses, 17 courses remain the same as in the original program. The proposed new courses already exist and are currently offered in the KS-EMBA program.

The proposed modification designates 12 courses as “core” (28 credits), including the 6.00 credit Applied Integrative Field Study. The remaining 10 courses (20 credits) are “electives” (see Appendix 2). This is in contrast to the existing program, which designated required courses as either ‘core’ or ‘advanced’ and had only 4.00 credits of elective space.

The proposed set of core courses cover the major disciplines of management and are to be delivered by Schulich faculty. They represent a set of standard courses whose subject matter is consistent across Schulich’s various MBA programs. The Applied Integrative Field Study spans six months and runs in the later part of the program. It entails a real life managerial challenge that participants are required to tackle, collect pertinent information, conduct analysis to identify the strategic issues, draw conclusions, identify options to respond to the challenge, develop recommendations and articulate appropriate actionable implementation plans. The final deliverables for each project consist of a major report containing the research, the recommendations and the action plan, as well as a formal presentation to the senior executives of the organization where the managerial challenge has been identified.

The complement of elective courses might change from year to year depending on student interests and partner faculty availability. This is the same practice followed in the existing KS EMBA program. Similarly, each new elective course will be vetted by the program committee at Schulich and follow the usual approval process.

In summary, the modified program structure consists of:

- *13 courses (11 core and 2 electives), delivered in 7 sessions of 5-days length each in York’s Hyderabad campus.*
- *A 6.00-credit core course comprising the capstone project, which is supervised by Schulich faculty and conducted in a blended format of in-person and online sessions, over the last six months of the program.*
- *2 elective courses, delivered in a week-long session in York’s Toronto campus.*
- *6 elective courses delivered in week-long sessions in four different partner locations in Brazil, Europe, China and South Africa (students pick and attend courses in three out of the four locations).*

The modifications bring the program closer in alignment with the existing KS-EMBA program while addressing the fact that various partner schools will be involved in the delivery of those electives and the students will have options to choose from within the program. The five international modules (China, Germany, Brazil, South Africa, and Toronto) allow the program to introduce instructors and subjects that better align with the needs of executives in the Southeast Asia region.

Appendix 3 lists all courses and provides short calendar descriptions for each, highlighting the new additions and modifications. Individual course outlines for the new courses are forthcoming. Appendix 4 shows the mapping of courses to the expected learning outcomes (the latter have not changed). Appendix 5 shows the schedule of a typical 5-day teaching session. As in the currently

approved version of the program, a strong emphasis is placed on out-of-class learning, including peer learning that occurs on-site and off-site.

c) An overview of the consultation undertaken with relevant academic units and an assessment of the impact of the modifications on other programs/graduate diplomas. (*Where and as appropriate, the proposal must include statements from the relevant program/graduate diplomas confirming consultation/support.*)

The only program that relates and might be affected by the proposed changes is the existing KS-EMBA program. The two programs share orientation and target the same population in the sense that both programs aim to serve mid-career executives with extensive managerial experience, who continue to work while pursuing their studies on a part time basis. However, the two programs have diametrically different geographic orientations as the EMPI focuses on Southeast Asia while the KS-EMBA serves North American (and predominantly Canadian) students.

As envisioned in the original proposal, the programs will use to some degree the same instructors; however, both program directors see this as an opportunity to augment the skills of the existing Schulich faculty and create additional opportunities for teaching executive students among all existing instructors within Schulich's faculty complement; they do not see the two programs competing for limited resources.

A statement from the Joint Kellogg-Schulich EMBA program director is attached in Appendix 6, stating his support for the EMPI program and the mutual benefits from the proposed changes.

d) A summary of any resource implications and how they are being addressed. (*Attention should be paid to whether the proposed changes will be supported by a reallocation of existing resources or if new/additional resources are required. If new/additional resources are required, the proposal must include a statement from the relevant Dean(s)/Principal.*)

None, as compared to the original proposal. If anything, as 4 more courses will be taught by partner institutions, the use of Schulich instructors will impose fewer constraints than originally planned.

e) A summary of how students currently enrolled in the program/graduate diploma will be accommodated.

None, as the program has not yet admitted any students.

4. Calendar Copy

Using the following two-column format, provide a copy of the relevant program/graduate diploma requirements as they will appear in the graduate Calendar.

Existing Program/Graduate Diploma Information (change from)	Proposed Program/Graduate Diploma Information (change to)
<p>Admission requirements are as follows:</p> <ul style="list-style-type: none"> ● An applicant should have a minimum of eight years of work experience with substantive management experience; management experience could include executive, functional and/or project management experience. Successful entrepreneurs are also encouraged to apply. ● The applicant normally should possess a 4-year post-secondary degree equivalent to Canadian university Bachelors degree from an accredited institution. A candidate with a 3-years bachelor's degree plus outstanding management experience will also be considered. ● An applicant who does not possess a suitable undergraduate degree but who has exceptional management experience may take the Graduate Management Admission Test (GMAT). The applicant must obtain acceptable scores on all components of the GMAT. ● Applicants must submit strong recommendations from employers or colleagues who are in a position to evaluate the applicant's work experience. ● An applicant whose first language is not English will be expected to submit evidence of a high level of English competence. Such evidence includes a minimum of two years in a post-secondary degree in which the language of instruction was English, or an 	<p>Overview</p> <p>The Schulich EMBA Program in India (EMPI) offers an executive MBA program that is geared towards educating managers in core and advanced management topics. The program runs in Schulich's Hyderabad campus but includes courses in Toronto and other international locations. It is scheduled to facilitate the busy work lives of practicing managers by offering courses over extended weekend sessions. Students engage in peer learning, international immersion and a capstone applied management project.</p> <p>Admission</p> <ul style="list-style-type: none"> ● Minimum of 8 years of work experience with substantive management experience ● Applicants normally should possess a 4-year post-secondary degree or a degree that is recognized as equivalent by the Faculty of Graduate Studies.¹ A candidate with a 3-years bachelor's degree plus outstanding management experience will also be considered. The latter may be required to take the GMAT or GRE and obtain acceptable scores on all components thereof. ● Applicants must submit at least two strong recommendations from employers or colleagues who are in a position to evaluate the applicant's work experience ● Proof of English language proficiency if prior studies were not completed in English: TOEFL (iBT): 100 with minimum component scores of 23 or IELTS: 7.0 overall with minimum component scores of 6.5. ● All applicants will be interviewed prior to admittance.

~~acceptably high IELTS or TOEFL score.~~

- All applicants will be interviewed prior to admittance.

Program, Progression and Graduation Requirements

~~The program consists of 48 credit hours of courses, of which 18 credit hours are 5000-level core management courses and 30 credit hours are 6000-level advanced topics.~~

~~All degree candidates will be reviewed for performance at the end of the fourth residential module.~~

~~Academic standards will be identical to those pertaining to the other formats of the York University MBA program.~~

Program, Progression and Graduation Requirements

48 credits of course work, consisting of:

- **26 credits of core courses, including a Capstone Field Study**
- **22 credits of electives**

Students' performance will be reviewed for **promotion after completion of 12 credits and 22 credits.**

All other requirements are identical to those of **Schulich's other Masters programs.**

¹ Undergraduate degrees not designated as honours degrees may be acceptable as the equivalent of an undergraduate honours degree if they contain a minimum of 120 credits (typically, a four-year program with full time enrolment) including the completion of a minimum of 6 credits at the fourth year level at an accredited postsecondary institution.

Three year first cycle undergraduate degrees from European institutions that meet the criteria set forth in the Bologna Declaration may be acceptable as the equivalent of an undergraduate honours degree.

Undergraduate degrees from Indian institutions that have received a ranking of five stars or A+ or higher by the National Assessment and Accreditation Council or from Indian institutions of higher education with whom York University has a signed partnership agreement may be acceptable as the equivalent of an undergraduate honours degree.

Appendix 1: Curricular Structure of Existing Program

Week*	Courses
1	EMPI 5000 2.00 – Leadership in turbulent times
	EMPI 5100 2.00 – Economics of the business enterprise
2	EMPI 5120 2.00 – Managing globally
	EMPI 5160 2.00 – Understanding financial reporting
3	EMPI 5140 1.00 – Managerial decision analysis [1/2 course]
	EMPI 5510 1.00 – Ethical behavior in complex environments [1/2 course]
	EMPI 5250 2.00 – Individual and group behaviour in organizations
4	EMPI 5180 2.00 – Marketing in a global context
	EMPI 5220 2.00 – Financial management
5	<u>UK week – Alternative perspectives</u>
	EMPI 6720 4.00 – Economics and competition in the European Union
6	EMPI 5300 2.00 – Managing for effective and efficient operations
	EMPI 6440 2.00 – International business and government relations
7	<u>PRC week – Alternative perspectives</u>
	EMPI 6730 4.00 – China’s economic environment; business strategies in China
8	EMPI 6300 2.00 – Value creation and the management of change
	EMPI 6450 2.00 – Sustainability, corporate responsibility, and ethical behaviour
9	EMPI 6150 2.00 – International competitive strategy
	Special topic* 2.00
10	EMPI 6600 2.00 – Responsible corporate governance
	Special topic* 2.00
11 & 12	<u>Integrative session @ Schulich Toronto</u>
	EMPI 6740 2.00 – Economics and competition in North America
	EMPI 6200 6.00 – Applied integrative field study

* The week-by-week course sequence in each program offering may differ somewhat from that indicated here, in order to improve the flow of the programming in successive offerings and due to faculty availability.

Appendix 2: Curricular Structure of Revised Program

Proposed/modified EMPI	Current/approved EMPI	Current Joint Kellogg-Schulich EMBA
<i>Core Courses</i>		
EMPI 5000 2.0 Leadership in Turbulent Times	EMPI 5000 2.0 Leadership in Turbulent Times	EMBA 5000 2.0 Leadership in Turbulent times
EMPI 5100 2.0 Economics of the Business Enterprise	EMPI 5100 2.0 Economics of the Business Enterprise	EMBA 5100 2.0 Economics of the Business Enterprise
EMPI 5120 2.0 Managing Globally	EMPI 5120 2.0 Managing Globally	EMBA 6500 2.0 Managing Globally
EMPI 5160 2.0 Financial Reporting Systems	EMPI 5160 2.0 Financial Reporting Systems	EMBA 5160 2.0 Financial Reporting Systems
EMPI 5140 2.0 Managerial Decision Analysis	EMPI 5140 1.0 Managerial Decision Analysis	EMBA 5140 2.0 Managerial Decision Analysis
retired	EMPI 5510 1.0 Ethical Leadership in Complex Environments	
EMPI 5250 2.0 Individual and Group Behaviour in Organizations	EMPI 5250 2.0 Individual and Group Behaviour in Organizations	EMBA 5250 2.0 Individual and Group Behaviour in Organizations
EMPI 5180 2.0 Marketing in a Global Context	EMPI 5180 2.0 Marketing in a Global Context	EMBA 5180 2.0 Marketing
EMPI 5220 2.0 Financial Management	EMPI 5220 2.0 Financial Management	EMBA 5220 2.0 Financial Management
EMPI 5460 2.0 Operations Management <i>new course</i>		EMBA 5460 2.0 Operations Management
EMPI 5320 2.0 Management Planning and Control <i>course title change</i>	EMPI 5300 2.0 Managing for effective and efficient operations	EMBA 5320 2.0 Management Planning and Control
EMPI 5050 2.0 Competitive Strategy <i>new course</i>		EMBA 5050 2.0 Competitive Strategy
EMPI 6200 6.0 Applied Integrative Field Study	EMPI 6200 6.0 Applied Integrative Field Study	EMBA 6780 4.0 Global Strategy Project
<i>Electives</i>		
retired	EMPI 6720 4.0 Economics and competition in the European Union	
retired	EMPI 6440 2.0 International Business and Government Relations	
EMPI 6730 2.0 China's Economic Environment	EMPI 6730 4.0 China's Economic environment	
EMPI 6300 2.0 Value Creation and the Management of Change	EMPI 6300 2.0 Value Creation and the Management of Change	
EMPI 6450 2.0 Sustainability, Corporate Responsibility and Ethical Behavior	EMPI 6450 2.0 Sustainability, Corporate Responsibility and Ethical Behavior	
EMPI 6150 2.0 International Competitive Strategy	EMPI 6150 2.0 International Competitive Strategy	
EMPI 6600 2.0 Responsible Corporate Governance	EMPI 6600 2.0 Responsible Corporate Governance	
EMPI 6740 2.0 Economics and Competition in North America	EMPI 6740 2.0 Economics and Competition in North America	
EMPI 6050 2.0 Mergers and Acquisitions	EMPI 6050 2.0 Mergers and Acquisitions	EMBA 6050 Mergers and Acquisitions
EMPI 6350 2.0 Creating and Managing	EMPI 6350 2.0 Creating and Managing	EMBA 6350 Creating and

Strategic Alliances	Strategic Alliances	Managing Strategic Alliances
<i>retired</i>	EMPI 6200 2.0 Strategy Execution	
<i>retired</i>	EMPI 6340 2.0 Strategic Thinking and Action in Turbulent Environments	
<i>retired</i>	EMPI 6670 2.0 International Entrepreneurship	
<i>New elective courses</i>		<i>Elective Courses (Selection)</i>
EMPI 6520 2.0 Financial Instruments and Capital Markets		EMBA 6520 Financial Instruments and Capital Markets
EMPI 6190 2.0 New Venture Design		EMBA 6190 New Venture Design
EMPI 6490 2.0 Enterprise IT and Digital Transformation		EMBA 6490 Enterprise IT and Digital Transformation
EMPI 6400 2.0 Negotiation Strategies		EMBA 6400 Negotiation Strategies
EMPI 6310 2.0 Leading High Impact Teams		EMBA 6310 Leading High Impact Teams
EMPI 6380 2.0 Strategic Marketing Decisions		EMBA 6380 Strategic Marketing Decisions

Appendix 3: Curricular Structure of Revised Program

<p>EMPI 5000 – Leadership in Turbulent Times</p> <p><u>UNCHANGED</u></p>	<p>Develops the skills and competencies for leadership in the new economy. The course combines an emphasis on behavioural skills, such as group dynamics, communication and managing diversity, with critical thinking designed to surface and challenge deeply held assumptions. Becoming more self-aware, reflective and able to challenge the taken-for-granted frames that constrain innovation and adaptation enables students to lead and govern their own organizations more effectively.</p>
<p>EMPI 5100 – Economics of the Business Enterprise</p> <p><u>UNCHANGED</u></p>	<p>Introduces key concepts and analytical tools that are useful to managers seeking to improve firm performance. Among the topics covered are the determinants of supply and demand, the role of prices in allocating resources, price discrimination and product differentiation strategies, profitability in competitive and monopolistic markets and the impact of a variety of government policies.</p>
<p>EMPI 5120 – Managing Globally</p> <p><u>UNCHANGED</u></p>	<p>Familiarizes students with the challenges faced by global managers and discusses ways in which they can be mastered successfully. The course is unique in that it uses historical case studies, based on the idea that what has worked in the past (or not) can provide important insights for a global manager today. Cases cover a wide range of time periods, geographic locations and sectors. While not the primary purpose of the course, the comparison with global business in earlier periods will also help identify the specific features of the current global economy.</p>
<p>EMPI 5160 – Financial Reporting Systems</p> <p><u>UNCHANGED</u></p>	<p>Examines the role of financial accounting information from the perspective of users and decision-makers. Emphasis is placed on the choices that the preparers of accounting information make, how these choices affect what is presented to decision-makers and ultimately the decisions they make. Cases are used to emphasize the impact that these choices can have on financial reporting and decisions.</p>
<p>EMPI 5140 – Managerial Decision Analysis</p> <p><u>UNCHANGED</u></p>	<p>Explores the languages of statistics with a focus on teaching candidates how to become knowledgeable consumers of statistical reports, effective managers of those doing the statistical analysis and confident critics of statistics done poorly. Regression analysis as a tool for understanding relationships of various types is also introduced.</p>
<p>EMPI 5250 – Individual and Group Behaviour in Organizations</p> <p><u>UNCHANGED</u></p>	<p>Explores individual and group behaviour in organizations with a focus on how to create knowledgeable, flexible and resilient work units that can respond to strategic-level change in organizations. The course will cover key concepts from a cross-cultural perspective, providing a foundation for understanding organizational phenomena and preparing students for leadership positions in a global environment, thereby enabling improved organizational effectiveness.</p>
<p>EMPI 5180 – Marketing in a Global Context</p> <p><u>UNCHANGED</u></p>	<p>Helps students understand contemporary marketing practices based on transactional perspectives and contemporary relationship and network perspectives. The impacts of globalization, technological developments, socio-cultural changes and high-velocity competition on the emergence and implementation of marketing strategy are examined. Topics include market segmentation and positioning, new product strategy, managing customer service quality, and pricing strategy and tactics.</p>
<p>EMPI 5220 – Financial Management</p> <p><u>UNCHANGED</u></p>	<p>Explores the strategic decisions that lead to capital spending. The risk element in financial decision-making and financial instruments that have evolved to re-allocate risk in the economy are discussed. Important concepts and principles of financial management are examined using both theory and cases.</p>

<p>EMPI 5460 - Operations Management</p> <p><u>NEW COURSE</u></p>	<p>Examines operations management in both manufacturing and service organizations and emphasizes tools and principles that are equally useful in both sectors. The course looks at the coordination of complex and dynamic systems of people, technology and materials to achieve competitive advantage. A process view of operations is developed and used in order to understand key operational decisions in the management of capacity, cycle time, quality and linkages to other partners in the value chain.</p>
<p>EMPI 5320 – Management Planning and Control</p> <p><u>COURSE TITLE CHANGE</u></p>	<p>Examines the use and usefulness of accounting information and operations data in managerial decision-making including strategy formulation and execution. Emphasis is placed on financial and non-financial information by firms working in an increasingly international environment. The course explores new models and approaches to management planning and control in both manufacturing and service organizations and examines tools and principles that are equally useful in both sectors. The course covers frameworks and tools of management such as balanced scorecard, activity based costing, and management incentive systems. The course looks at the coordination of complex and dynamic systems of people, technology and materials to achieve competitive advantage.</p>
<p>EMPI 5050 – Competitive Strategy</p> <p><u>NEW COURSE</u></p>	<p>Explores principles of business strategy and develops an analytical framework for identifying and evaluating alternative strategies. The course is designed to integrate and build on the knowledge, skills and experiences students acquired thus far in the program. It derives its logic from the increasing globalization of business and develops concepts and tools for the design and implementation of effective competitive strategies in a rapidly changing global business environment.</p>
<p>EMPI 6200 – Applied Integrative Field Study</p> <p><u>COURSE REVISION</u></p>	<p>Applies students' learning to strategic analysis for an actual organization. Each year, the students will enlist specific organizations as study sites. During a six month period, teams of students will perform primary and secondary research of the organization and its environment; they will utilize the frameworks and models learned during their studies to analyze the information, draw conclusions and develop actionable recommendations to address the specific strategic challenge facing the organization. Each team will make a comprehensive presentation of their findings and recommendations to a panel comprised of faculty members and the company's executives.</p>
<p>EMPI 6730 – PRC Perspectives; China's Economic Environment</p> <p><u>UNCHANGED</u></p>	<p>Exposes participants to specialized strategic perspectives for managing businesses pertinent to China. In particular, the course helps participants understand how Chinese firms behave and grow and why multinational corporations develop, adapt and adjust their strategies for the Chinese market (e.g., industry competitive analysis, market positioning and product development). It also aims to examine the motives and strategic issues associated with Chinese firms that invest in Western countries. Among the principal issues examined are: negotiating strategies, entry strategies, pricing strategies and strategies for dealing with governments and state-owned enterprises. The course is taught through a series of cases which illustrate successful and unsuccessful management strategies in Asia.</p>
<p>EMPI 6300 – Value Creation and the Management of Change</p> <p><u>UNCHANGED</u></p>	<p>Develops an understanding of the complex nature of change, identifies requirements for successful change and provides tools for designing, implementing and sustaining change within organizations. As the environment of many organizations becomes increasingly complex and unstable, it is imperative that top managers be able to create a climate of flexibility and adaptability in their operations. This course surveys the major methods available to the modern manager for effectively managing the process of change and creating a general climate in which needed changes are sought and welcomed throughout the organization.</p>

<p>EMPI 6450 – Sustainability, Corporate Responsibility and Ethical Behavior</p> <p><u>UNCHANGED</u></p>	<p>Provides a perspective framed around the proposition that businesses that rise to the challenge of sustainability not only succeed in protecting people and the natural environment. Such firms recruit and retain the best and brightest workers, maintain the trust and loyalty of their customers and business partners, innovate and develop new products and markets and minimize their risks and liabilities. The course takes a strategic approach and offers insights into marketing, innovation, organizational behaviour, finance and accounting, and communicating for sustainability.</p>
<p>EMPI 6150 – International Competitive Strategy</p> <p><u>UNCHANGED</u></p>	<p>Explores the principles of business strategy and develops an analytical framework for identifying and evaluating alternative strategies within a global marketplace. The course is designed to integrate and build on the knowledge, skills and experiences students acquired thus far in the program. It derives its logic from the increasing globalization of business and develops concepts and tools for the design and implementation of effective competitive strategies in a rapidly changing global business environment.</p>
<p>EMPI 6600 – Responsible Corporate Governance</p> <p><u>UNCHANGED</u></p>	<p>Focuses on the role of the board of directors in the operation of the business corporation. The composition, organization, operation and functions of boards are studied. The role of the board in determining the ethical conduct of firms, the social responsibilities of business and the input of business into the formation of public policies is given special attention.</p>
<p>EMPI 6740 – Economics and Competition in North America</p> <p><u>UNCHANGED</u></p>	<p>Examines the economic, political, and financial basis of management in Canada and the United States. The course stresses the legal, political and regulatory differences between the U.S. and Canada. Contrasts with Mexico also are featured, as is the general trade atmosphere within North America and with other regions.</p>
<p>EMPI 6050 – Mergers and Acquisitions</p> <p><u>UNCHANGED</u></p>	<p>In this course:</p> <ul style="list-style-type: none"> • We address the fundamental questions that pertain to corporate control and investigate the strategic and organizational considerations that arise with ownership changes. • We explore the motives of individual firms to engage in a merger or pursue an acquisition. • We debate the various theoretical perspectives proposed to explain such organizational undertakings and contrast them with the typical pronouncements that accompany these moves. • We examine the prevailing valuation models employed by investment bankers in advising on mergers and acquisitions and consider the legal aspects of domestic and international transactions. • We discuss the activities that lead to negotiating and putting together a deal. • We explore the integration challenges and the organizational, human resources, and operational issues that managers are called to tackle to extract value from their acquisitions.
<p>EMPI 6350 – Creating and Managing Strategic Alliances</p> <p><u>UNCHANGED</u></p>	<p>This course examines the theory and practice of creating and managing different types of strategic alliances, such as joint ventures, licensing agreements, buyer-supplier partnerships, and consortia. It enables students to better understand the costs and benefits of strategic alliances compared to other strategies such as internal development or M&A, design alliances, and avoid potential problems and complications in managing them.</p>

<p>EMPI 6520 - Financial Instruments and Capital Markets</p> <p><u>NEW COURSE</u></p>	<p>The purpose of this course is to further develop your skills in financial management. We will focus on the determination of financial policies for companies including capital structure decisions, dividend policy, the basics of business valuation and restructures. The course has three key components:</p> <ol style="list-style-type: none"> 1. Study of financial management theories, including an assessment of the assumptions underlying the theories. Through the study of theories, you will learn models and tools that may help you make decisions as a financial manager. 2. Examination of empirical studies of financial management issues. You will read the results of academic research on business practice to learn how well theories work and how managers apply financial theories. 3. Case study analysis to provide you with opportunities to integrate financial theories and empirical evidence with real business situations. You will develop your problem solving skills and practice decision-making as a financial manager.
<p>EMPI 6190 – New Venture Design</p> <p><u>NEW COURSE</u></p>	<p>The objectives for this course are to enable participants to practice thinking and acting entrepreneurially, and gain confidence doing so. Participants will engage in the venture development process, identify opportunities, develop business concepts and validate them, ideally enabling them to present their venture projects within their own organizations or to pitch them to potential resource providers.</p>
<p>EMPI 6490 - Enterprise IT and Digital Transformation</p> <p><u>NEW COURSE</u></p>	<p>The orientation of this course is organizational and strategic. It deals with the effective management of capabilities generated from IT and digital technologies, rather than the systems themselves. The course has two main areas of focus. First, it explores enterprise IT strategy models and approaches. The second focus of the course is on digital transformation. This course builds on the assumption that IT and digital technologies can have a dramatic impact on organizations, both positive and negative. Thus it becomes critical for executives to be well informed about the potential for IT to provide strategic benefits. The course takes a critical approach to the strategic use of IT and questions the real value of IT to organizations. Top-performing organizations succeed in obtaining value from IT where others fail, in part by implementing effective IT governance to support their strategies and institutionalize good practices.</p>
<p>EMPI 6400 – Negotiation Strategies</p> <p><u>NEW COURSE</u></p>	<p>Negotiation and dispute resolution are topics of great interest to managers in all sectors. In this course students are introduced to the big picture view of negotiations with a focus on readily accessible insights, strategies and practices. Theoretically the course draws on several disciplines including economics, psychology, sociology, communications and organizational behaviour. From this multi-disciplinary perspective students are encouraged to learn the building blocks of successful negotiations as well as the tools and more complex concepts that underlie them. The differences between integrative and distributive bargaining are explored and examples of each are presented. The course is intensive and relies extensively on experiential exercises. These are done through simulations set in dyads, groups, and multilateral contexts within and between organizations and across cultures. Students engage in, and receive feedback on their performance in, a variety of experiential exercises beginning with simple two-party disputes and moving to complex multi-party conflicts.</p>
<p>EMPI 6310 – Leading High Impact Teams</p> <p><u>NEW COURSE</u></p>	<p>This course examines the design, management, and leadership of teams in organizational settings. The focus is on the interpersonal processes and structural characteristics that influence the effectiveness of teams, the dynamics of intra-team relationships, and sharing of knowledge and information in teams. The purpose of this course is to understand the theory and processes of group and team behavior so that leaders can successfully work with teams. Students who take advantage of everything this course.</p>

<p>EMPI 6380 – Strategic Marketing Decisions</p> <p><u>NEW COURSE</u></p>	<p>In the Strategic Marketing Decisions course, a computer simulation is used to give students the experience of running a business, making marketing decisions and gaining support for their recommendations. Students and their team members will be given a business to run; their challenge is to apply marketing concepts to deliver strong financial results and create a solid, on-going business over the course of the simulation.</p>
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Appendix 4: Expected Learning Outcomes (remapping of courses)

The Executive MBA degree is awarded to a student who has demonstrated achievement in the following:

(# corresponding to individual courses as per the Legend below)

Expected Learning Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. Depth and Breadth of Knowledge																										
a) knowledge of major disciplines used in management		V		V	V	V	V	V	V	V	V				V	V		V	V	V	V		V			V
d) understanding of the relationship between management and the environment, the role of sustainability in management practices, and the ethical responsibilities of management	V	V				V	V		V		V	V	V	V	V	V	V					V				V
2. Application of Knowledge																										
a) ability to apply management concepts to make effective operating decisions	V	V	V		V	V	V	V	V	V	V	V		V					V	V	V		V	V	V	V
b) ability to apply critical thinking and analytical skills to complex problems and issues, including those within a specific discipline and those that cross discipline boundaries	V		V		V		V		V	V	V	V		V	V	V		V	V	V	V	V	V	V		V
4. Communication Skills																										
ability to communicate ideas, information, analyses, and recommendations effectively to a range of audiences, both orally and in writing			V			V	V				V	V			V	V	V					V		V	V	V
5. Leadership skills																										
a) ability to work effectively in teams both within a discipline and across disciplines	V					V					V	V	V	V								V		V	V	
b) ability to inspire and motivate individuals to contribute to common objectives	V		V			V					V	V		V			V			V				V	V	
c) ability to exhibit professional and personal integrity in decisions and actions	V			V				V		V	V	V		V	V		V							V	V	
6. Awareness of Limits of Knowledge																										
a) understanding of the limitations of acquired knowledge, skills and abilities, and an appreciation of the uncertainty, ambiguity, and limits to knowledge, as		V			V		V	V	V	V	V	V			V		V	V	V	V		V		V		V

Appendix 5: Typical teaching schedule

	Thursday	Friday	Saturday	Sunday	Monday
08:30 – 12:00		Course B	Course B	Course B	Course B
12:00 – 13:00	<i>arrivals</i>	Peer learning and group work			
13:00 – 14:00	<i>lunch</i>	<i>lunch</i>	<i>lunch</i>	<i>lunch</i>	<i>lunch</i>
14:00 – 17:30	Course A	Course A	Course A	Course A	<i>departures</i>
17:30 – 19:00	Peer learning and group work				
19:00 – 20:00	<i>dinner</i>	<i>dinner</i>	<i>dinner</i>	<i>dinner</i>	
20:00 – 22:00	Peer learning and group work				

Change to Program/Graduate Diploma Academic Requirements Proposal Template

The following information is required for all proposals involving a change to program/graduate diploma academic requirements, including admission requirements. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program/Graduate Diploma:

Master of Business Analytics (MBAN)

2. Effective Session of Proposed Change(s):

Summer 2018

3. Proposed Change(s) and Rationale

The description of and rationale for the proposed change(s) should provide information with respect to each of the following points. Please provide:

a) A description of the proposed change(s) and rationale, including alignment with academic plans.

The Master of Business Analytics program has been a great success since its inception. The program grew from 4 students in its initiation year (2012) to 53 students in 2016. The two most important reasons for our program's success are the program's academic rigor and its close relationship with industry that integrates the learning outcomes that need to be achieved. From its infancy, the program had an Advisory Board consisting of business leaders in the analytics industry. In Appendix IV, we provide the list of our Advisory Board membership. Based on advice from the Board, the program has identified three major changes for the program:

1. Introduction of new courses that reflect the new developments in the field of analytics, and
2. Aligning the program structure in order to accommodate the new course structure.
3. As an informational point, the program also intends to shift the program start from the Fall to the Summer semester in order to align the graduation of its students with the hiring cycle of industry.

One change in the course structure is the revision of existing courses and the introduction of three new technical courses. These courses will help deepen and widen the analytical skills our students will obtain in areas such as visual analytics and big data. The introduction of the new courses is offset by a reduction in electives from 4 to 3 courses and the restructuring of the major research project.

A second change is the removal of the Marketing and Supply Chain Management streams from the program. Students will no longer be required to choose their electives from a set of quantitative versus managerial courses. They will instead be free to choose from a list of elective courses.

The proposed structure of the new version of the major research project was inspired by an exciting development in the field of business analytics. Organizations are conducting what is called "Big Data Competitions" where they provide real-life data to a group of scientists to come up with solutions to their business problems. These competitions provide significant learning opportunities both for organizations and also for the competitors (i.e. students). Motivated by these competitions, our Advisory Board

suggested that we create a course that allows our students to work on real-life data. Our task force has decided to incorporate this opportunity into a newly reconfigured major research project. The new version of this course will replace the current version while retaining a significant cumulative and experiential project within the program, with data provided by organizations and analysed by our students. This community service project will also enable our students to directly interface with industry leaders and further develop their technical and organizational expertise while doing so.

Starting the program in the Summer session, rather than the Fall, will have positive implications for the placement of our students. Our program is a 12-month professional masters program, and it is our experience that our employers are seeking out our students in the October – December period. In order to provide our students more competitive capabilities, the program needs to start in Summer term. This will ensure that students will have completed half the program (rather than just the first two months) before having to interview with potential employers.

Taken together, the proposed changes will result in providing our students with more in-depth understanding of Business Analytics and an enhanced exposure to the analytics community and, in doing so, create a program which is more attractive to both students and future employers. The proposed changes align with the University’s strategic plan of using high impact educational practices, including experiential education and project-based learning. While strengthening the curriculum, these changes also further the University’s quest to expand upon community engagement.

b) An outline of the changes to requirements and the associated learning outcomes, including how the proposed requirements will support the achievement of program/graduate diploma learning objectives.

The new, proposed curriculum will have 45 credits (36 core and 9 elective) instead of the current 42 credits. Table 1 compares the current and new program curriculum.

TERM	EXISTING CURRICULUM	PROPOSED CURRICULUM
TERM 1 (Fall in the existing program, Summer in the new program)	MBAN 5110 (3.00) Introduction to Predictive Modelling MBAN 5120 (1.50) Data Management & Programming I – to be expanded MBAN 5150 (3.00) Skills for Leadership – to be retired OMIS 6000 (3.00) Models and Applications in Operational Research Electives (6.00)	MBAN 5140 (3.00) Visual Analytics – New Course MBAN 5110 (3.00) Predictive Modelling I – Name Change MBAN 5330 (3.00) Applications in Big Data – New Course MBAN 5120 (3.00) Data Management & Programming – Name & Content Change MBAN 6300 (3.00) Case Analysis and Presentation Skills

TERM 2	MBAN 5220 (3.00) Data Management and Programming II – to be retired MBAN 5250 (1.50) Analytics Consulting – to be retired MBAN 6300 (3.00) Case Analysis and Presentation Skills MBAN 6400 (3.00) Multivariate Methods for Business Analytics Electives (6.00) – to be contracted to 3 credits	MBAN 5210 (3.00) Predictive Modelling II – New Course MBAN 6110 (3.00) Machine Learning I – Name Change OMIS 6350 (3.00) Advanced Spreadsheet Modelling & Programming for Business MBA Elective I (3.00)	MBAN 6090 6.0 Major Research Project (Structural Change)
TERM 3	MBAN 6090 (9.00) Major Research Project – to be restructured to run over two semesters and be worth 6.00 credits	MBAN 6120 (3.00) Machine Learning II – Name Change MBAN 6400 (3.00) Multivariate Methods for Business Analytics MBA Elective II (3.00) MBA Elective III (3.00)	

Table 1. Degree Requirements: Current & Proposed

In Appendices 2 and 3, we present the course descriptions for core (Appendix 2) and elective (Appendix 3) courses. In Table 2, we present the relationship between the Expected Learning Outcomes and Program Structure. Below we itemize the list of new courses and changes to existing courses.

1. We propose to drop **SB/MBAN 5150** from the program structure. Even though this course has been successful within the MBA Program, where it is taught as **SB/MGMT 5150**, we have found that it doesn't have the same relevance to the MBAN students.
2. We propose to combine **SB/MBAN 5120 1.50 Data Management & Programming I** and **SB/MBAN 5220 3.00 SB/Data Management & Programming II** and change its name into **SB/MBAN 5120 3.00, Data Management & Programming**. This course is currently taught, and will continue to be taught by experts from SAS Institute. This change occurs in conjunction with the introduction of a new course, **SB/MBAN 5330 3.00, Applications in Big Data**. While Data Management focuses on cleaning and manipulating data using the classical techniques of SAS, SQL, and Hadoop, **SB/MBAN 5330** focuses on Big Data applications such as Artificial Intelligence applications that enable data scientist to build models that would analyse data in real time. Our program shows another strong industry and academic alliance within this course. We will be collaborating extensively with **IBM Thomas J. Watson Research Center** for this course, and not only we will be getting access to computing power, and real life data, PhDs from this centre will present as guest lecturers in this course.
3. We propose to introduce a new course **SB/MBAN 5140, Visual Analytics & Modelling**. One of the newer requirements in business analytics is the ability to visualize complex data. According to Rick Smolan, the creator of the PBS documentary "The Human Face of Big Data", the amount of data generated by humanity during the first day of a baby's life is equivalent to 70 times of the information contained in the Library of Congress. As a result, analysing big data only in terms of

statistical and machine learning techniques is not enough to make it comprehensible. The results need to resonate with decision makers and other users of such information. The Visual Analytics course will enable our students to explain the results of their highly technical analyses through graphs and pictures. We secured strong support from one of the leading data visualization companies, Tableau Incorporation (www.tableau.com), which will provide the software. The course will be taught by the data visualization instructors from the Information Design Department at York University.

4. We propose to expand **SB/MBAN 5110 3.00, Introduction to Predictive Modelling** to a series of two courses, **SB/MBAN 5110 3.00, Predictive Modelling I**, and **SB/MBAN 5210 3.00, Predictive Modelling II**. In Predictive Modelling I, we will cover topics such as Decision Trees, and Logistic Regression, while in Predictive Modelling II we will cover more advanced topics such as forecasting, time-series analysis, and repeated measures.
5. We propose to change the names of **SB/MBAN 6110 3.00 & 6120 3.00** from **Data Science I and II to Machine Learning I & II**. The advisory board believes that the course titles should be more prescriptive of what is taught in the courses to help recruiters make informed decisions while hiring our students. The renamed courses will become core, rather than elective courses.
6. We propose to make **SB/OMIS 6350 3.00 Advanced Spreadsheet Modelling & Programming for Business** a required course. This course is currently a quantitative elective in the program. However, approximately 90% of our students take this course regularly, and feedback indicates that it is essential for our students' success in placements and further advancement in their careers.
7. We propose to make **SB/OMIS 6000 3.00 Models and Applications in Operational Research** an elective course. The feedback that we received from the Advisory Board indicated that our program should enhance the Predictive Analytics portion of the program rather than Prescriptive Analytics applications. As a result, in order to provide our students more in depth applications in Predictive Analytics, we chose to convert OMIS 6000, which covers linear optimization and simulation applications to an elective course. Linear Optimization is indeed a Prescriptive Analytics application, and as a result we decided to provide this course to students who are really interested in this topic.
8. We also propose to remove **SB/MBAN 5250 1.50 Analytics Consulting** from the curriculum. This course was originally introduced to provide insights about how consulting projects are run to our MBAN students. However, we started covering most of the topics in the Big Data Workshop and our students are getting first hand consulting experience in the new MBAN 6090 course.
9. Another major change in the program is restructuring of the Major Research Project, **SB/MBAN 6090 9.00**. Currently, this course runs as a capstone course in the summer term. The new version would stretch the course (as a 6.00 credit version) over terms 2 and 3, similar to the MRP in the MBA and IMBA programs. This would allow students to do more substantial work as it often takes time to collect and clean data. It also allows us to expand the number of courses in order to complement the capabilities offered through the current version of the program. Even though, we are changing this course from a placement to a community-involved service project, the new version still will retain the experiential nature of the course as well as students' exposure to the analytics industry.
10. The **Marketing and Supply Chain Management streams** will be removed from the program as students will no longer be required to choose electives from a set of quantitative versus managerial courses. Instead, students will be free to choose any of the courses listed in Appendix 3 (this list is subject to change via approval by the program director).

Table 2: Relationship between Expected Learning Outcomes and Program Structure

		MBAN 5140 VISUAL ANALYTICS & MODELLING	MBAN 5110 PREDICTIVE MODELLING I	MBAN 5330 APPLICATIONS IN BIG DATA	MBAN 5120 DATA MANAGEMENT & PROGRAMMING	MBAN 6300 CASE ANALYSIS	MBAN 5210 PREDICTIVE MODELLING II	MBAN 6110 MACHINE LEARNING I	OMIS 6350 ADVANCED SPREADSHEET MODELLING	MBAN 6090 MAJOR RESEARCH PROJECT	MBAN 6120 MACHINE LEARNING II	MBAN 6400 MULTIVARIATE METHODS
Expected Learning Outcomes	How are the Learning Objectives achieved?											
1. Breadth and Depth of Knowledge												
Be knowledgeable in a wide range of business analytics topics, and be able to converse intelligently with a variety of professionals in different job functions.	These objectives are achieved through twelve 3.00 credit courses, all in business analytics or in a related function (e.g., statistics, operations research, marketing research, etc.). As well, the MBAN 6090 enables students to either study a topic in business analytics in detail or work on a specific analytics project within an organization.	■	■	■	■		■	■	■	■	■	■
Be able to conduct competent business analytics projects in a variety of job functions.	In addition to these courses, the electives offer students a chance to explore specific functional areas in business and deepen their knowledge within these areas.	■		■				■		■	■	
2. Research and scholarship												
Be able to conduct research using readily available transactional level data that resides in various organizations, at a level expected in a business analyst role (or higher) in the private sector.	All courses have at least one group research project, and some assignments require individual student research. Originality and creativity are emphasized. The MBAN 6090 involves conducting in depth research using organizational data. Students are expected to draw upon empirical academic research to support their conclusions and recommendations.											
Be able to generate well-structured and formatted research reports.		■	■	■	■		■		■	■	■	■
Have an appreciation of theoretical and empirical academic research in business analytics.												
Be familiar with the top scholarly outlets in the field.												

		MBAN 5140 VISUAL ANALYTICS & MODELLING	MBAN 5110 PREDICTIVE MODELLING I	MBAN 5330 APPLICATIONS IN BIG DATA	MBAN 5120 DATA MANAGEMENT & PROGRAMMING	MBAN 6300 CASE ANALYSIS	MBAN 5210 PREDICTIVE MODELLING II	MBAN 6110 MACHINE LEARNING I	OMIS 6350 ADVANCED SPREADSHEET MODELLING	MBAN 6090 MAJOR RESEARCH PROJECT	MBAN 6120 MACHINE LEARNING II	MBAN 6400 MULTIVARIATE METHODS
3. Level of application of knowledge												
Be able to apply their knowledge to new applications, such as retention analysis, or a new method of market segmentation of new customers, etc.	Students are given opportunities through course-based research projects to explore different situations and are well equipped with the tools they need to apply their knowledge to new frontiers. Besides coverage in the core courses, the 9.00 credit hours of electives will enable students to apply business analytics to a specific functional area and the MBAN 6090 will provide an industry specific context in which to work.		■				■	■	■	■	■	■
4. Professional capacity/autonomy												
Graduates are expected to exercise good judgment and make informed decisions.	Students will be exposed to various scenarios in which experts need to make informed decisions and exercise good judgment on specific business analytics projects. This decision making involves consideration of technical questions, such as the appropriateness of data and methods, as well as intra- and inter-organizational political processes.	■	■			■				■	■	
Graduates are expected to understand best practice and good governance while collecting and analyzing data.												

		MBAN 5140 VISUAL ANALYTICS & MODELLING	MBAN 5110 PREDICTIVE MODELLING I	MBAN 5330 APPLICATIONS IN BIG DATA	MBAN 5120 DATA MANAGEMENT & PROGRAMMING	MBAN 6300 CASE ANALYSIS	MBAN 5210 PREDICTIVE MODELLING II	MBAN 6110 MACHINE LEARNING I	OMIS 6350 ADVANCED SPREADSHEET MODELLING	MBAN 6090 MAJOR RESEARCH PROJECT	MBAN 6120 MACHINE LEARNING II	MBAN 6400 MULTIVARIATE METHODS
5. Level of communication skills												
Graduates are expected to be able to write concise, well researched, professionally formatted and structured reports.	Students have group presentations in the majority of their courses in the program. Presentation style and skills are honed. In addition, MBAN 6300 course focuses on Case Analysis and Presentation Skills. In all of the courses, class participation is encouraged and is a graded component of many courses.					■				■	■	
Graduates are expected to be able to present, communicate, and market ideas clearly and effectively.	The consolidation of these learning outcomes occurs in the MBAN 6090 . Students are required to produce an articulate and well-formatted presentation that summarizes the research they have completed at an organization or on a business analytics research study.											
Graduates are expected to be able to put together effective and professional presentations.												
6. Awareness of limits of knowledge												
Be cognizant of the limitations of theoretical models and empirical findings.	These objectives are achieved through the presentation and discussion of alternative schools of thought in statistical applications. The MBAN 5250, MBAN 6400, MBAN 6110 & 6120 courses as well as the MBAN 6090 will provide case specific contexts in which theoretical models will be tested.			■			■	■		■	■	■
Be aware of different schools of thought in statistical applications.												

c) An overview of the consultation undertaken with relevant academic units and an assessment of the impact of the modifications on other programs/graduate diplomas.

(Where and as appropriate, the proposal must include statements from the relevant program/graduate diplomas confirming consultation/support.)

The current format of the program allows students to take maximum one AP/ECON course and/or maximum five SC/MATH courses as electives. A SLIM report covering AY 2009 to today indicates that MBAN students have never taken the ECON course and made rare use of only two of the five MATH courses accessible to them (MATH 6627 in 2014 and MATH 6911 in 2015). We consulted with the chair of the MATH department, and he has no problem with the program dropping these courses from its list of electives. There are no resource implications for the MATH or ECON departments.

Inside Schulich, the relevant academic areas were consulted, as were administrative units (i.e., the career centre, student services and graduate admissions).

d) A summary of any resource implications and how they are being addressed.

(Attention should be paid to whether the proposed changes will be supported by a reallocation of existing resources or if new/additional resources are required. If new/additional resources are required, the proposal must include a statement from the relevant Dean(s)/Principal.)

The restructured program calls for converting three elective courses into core courses (MBAN 6110, MBAN 6120, and OMIS 6350). Also, we will convert the 3rd term MRP (MBAN 6090) from a 9.00 credit to a 6.00 credit course, make OMIS 6000 3.00 an elective, and retire MBAN 5250 1.50 from the program. As a result, resources are not significantly impacted.

e) A summary of how students currently enrolled in the program/graduate diploma will be accommodated.

Current students or those admitted into the program in 2017/18 will not be affected as they are expected to graduate after Summer 2018 under the current program structure. The Summer 2018 intake will commence their studies using the new program structure. Any student that may start in 2017/18 and – against all odds – carry over into 2018/19 will be accommodated through course substitutions where appropriate.

4. Calendar Copy

Same as before.

Existing Program/Graduate Diploma Information (change from)	Proposed Program/Graduate Diploma Information (change to)
<p>The Master of Business Analytics (MBAN) is a professional degree program designed to provide students with the breadth and depth of knowledge to be successful in a wide range of careers in areas such as banking, insurance, marketing, consulting, supply chain management, healthcare, and large technology firms. The MSBA may also serve as a foundation to pursue a PhD in this field.</p> <p>Students will gain a conceptual understanding and methodological competence of established techniques in business analytics which are used to create and interpret</p>	<p>No change.</p>

knowledge in various business environments. They will be able to address complex issues using quantitative methodologies and create value for organizations using business analytics as a key measurement of performance and organizational planning. Graduates will understand how to apply business analytics to generate solutions which balance time, resources and complexity. This will possess a skill set that is both quantitative and qualitative, with the technical competence to analyse data coupled with the skills required to communicate effectively.

An undergraduate degree from a recognized postsecondary institution with a minimum B+ average in the last two full years (or equivalent) of academic work. Three-year cycle undergraduate degrees from institutions that meet the criteria set forth in the Bologna Declaration may be acceptable as the equivalent of an undergraduate honours degree.

Acceptable scores on all measures of the GMAT or GRE, or a degree from Schulich with a GPA of B+ or better that was awarded no more than five years ago.

Proof of English language proficiency if prior studies were not completed in English: TOEFL (iBT): 100 with minimum component scores of 23 or IELTS: 7.0 overall with minimum component scores of 6.5.

Otherwise acceptable students who lack specific course content judged to be essential, as identified by the program director, may be required to complete additional coursework either prior to or in the early stage of their degree program in order to address identified deficiencies.

Appendix 1: Complete Program Level Expected Learning Outcomes

Degree level expectations and learning objectives

The Master of Business Analytics (MBAN) is a specialist business degree designed to provide students with the breadth and depth of knowledge to be successful in a wide range of careers in banking, insurance, marketing, supply chain management, and in health care. In today's competitive world, one of the biggest gaps that needs to be addressed from a skills perspective is to train students that can address a business question, and understand how to apply business analytics to get to the answer that balances time, resources and complexity. Business Analytics is defined as the science of responding to individuals' needs by providing them the product or service, at the right time, at the right price, with the help of business theory, analytical tools and data. Too often, graduates just do what they are told instead of understanding the organizational setting and developing an appropriate solution based on the real need. In addition to the analytical training, finding ways to help our graduates understand the real issues by giving them the tools to analyze business processes is a critical outcome of this program. This requires both quantitative and qualitative skills. In addition to focusing on the theory and practice of statistics and operations research fundamentals, the program emphasizes responsible and ethical behavior.

Overall Expected Learning Outcomes:

Graduates of this field are expected to be able to:

- a. employ advanced business analytics techniques to conduct projects in order to understand customer and transactional data;
- b. communicate with organizations about data requirements for business analytics projects;
- c. gather data and build Model Data Files that will be used in analytics projects;
- d. conduct projects ethically when accessing, analyzing and reporting the results of Business Analytics projects.

Expectations and Objectives

1. Breadth and depth of knowledge

Graduates are expected to be:

- a. knowledgeable in a wide range of business analytics topics (retention analytics, customer segmentation, etc), and be able to converse intelligently with a variety of professionals in different job functions;
- b. able to conduct competent business analytics projects in a variety of job functions.

The above objectives are achieved through 22.50 credit-hour courses, all in business analytics or in a related function (e.g., statistics, operations research, marketing research, etc.), as well as through the capstone Analytics Consulting Project, which enables the students to work on a specific analytics project in order to gain real world experience.

2. Research and scholarship

Graduates are expected to:

- a. be able to conduct research using readily available transactional level data that resides in various organizations, at a level expected in a business analyst role (or higher) in the private sector;
- b. be able to generate well-structured and formatted research reports;
- c. have an appreciation of theoretical and empirical academic research in business analytics;
- d. be familiar with the top scholarly outlets in the field.

While a master's thesis is not a requirement in the program, all required courses have a research component. All courses have at least one group research project, and some assignments require individual student research. Originality and creativity are emphasized.

3. Level of application of knowledge

Business Analytics is a dynamic and evolving field, with an ever-changing set of issues and challenges.

Graduates are expected to:

- a. be able to apply their knowledge to new applications, such as retention analysis, or a new method of market segmentation of the new customers, etc.

Students are given many opportunities in their course based research projects to explore different situations and are well equipped with the tools they need to apply their knowledge to new frontiers.

4. Professional capacity/autonomy

Graduates are expected to:

- a. exercise good judgment and make informed decisions;
- b. understand best practice and good governance while collecting and analyzing data.

5. Level of communication skills

Graduates are expected to be able to:

- a. write concise, well researched and professionally formatted and structured reports;
- b. present, communicate, and market ideas clearly and effectively;
- c. put together effective and professional presentations.

Students have group presentations in the majority of their courses in the program. Presentation skills are honed. Twice in the fall term, individual feedback is provided by the Program Director to help students develop an appropriate presentation style for the business analytics sector. In addition, class participation is encouraged in all classes.

6. Awareness of limits of knowledge

Graduates are expected to be:

- a. cognizant of the limitations of theoretical models and empirical findings;
- b. aware of different schools of thought in statistical applications.

The above objectives are achieved through research seminars (which are jointly attended by faculty and PhD students), and the presentation of alternative models.

Appendix 2: Descriptions of Core Courses

SB/MBAN 6090 6.00: Analytics Consulting Project (Course credit, title and description change)

The Analytics Consulting Project is the capstone integrative course of the MBAN program. It will allow students to deepen their understanding of the subject matter and methodologies, as well as provide an opportunity for hands-on, problem-driven research and application. It is an intensive, 2 term project where groups of 4 MBAN students undertake a comprehensive analytics project of an organization (“client site”) and provide business insights to enhance the site’s future success. At the conclusion of the analytics consulting project students submit and present their final work to a panel of at least two experts, including the course director, and also to the client site.

SB/MBAN 5110 3.00: Predictive Modeling I (Course title change)

This course provides the tools needed to build models from data sets, validate models, and make predictions. The course emphasizes the SAS environment. Major areas for discussion include analysis of variance, regression, categorical data analysis, and predictive modelling. The course emphasizes both theory and practice, allowing students to use statistical theory for purposes of business case analysis.

SB/MBAN 5210 3.00: Predictive Modelling II (New course)

This course provides advanced tools needed to build models from data sets, validate models, and make predictions. The course emphasizes the SAS environment. Major areas for discussion include analysis of variance, regression, decision trees, and predictive modelling. The course emphasizes both theory and practice, allowing students to use statistical theory for purposes of business case analysis.

SB/MBAN 5250 1.50: Analytics Consulting (Course retirement)

The Analytics Consulting course provides a broad overview of key analytics disciplines in the real world. It exposes students to how analytics professionals plan, conduct, and implement analytics projects in varying industries and within different work-streams. The course allows students to see the real-life impact of analytics and observe the similarities in approaches and issues across business environments. This six-session course convenes every other week and focuses on five disciplines such as human resources management, supply chain management, marketing, finance, and insurance. A final lecture summarizes the course and introduces emerging applications of analytics and big data.

SB/MBAN 5150 3.00: Skills for Leadership (Course retirement)

This course develops the thinking and reflective skills required for leadership in a turbulent world. Drawing on complexity science, the course applies a multiple perspectives framework to challenge embedded assumptions and advance students’ ability to think creatively, analytically and strategically. Students learn to identify and reframe complex problems more effectively, and to develop and communicate actionable solutions compellingly.

SB/MBAN 5220 3.00: Data Management & Programming II (Course retirement)

The Data Management and Programming II course examines advanced techniques for manipulating data. The course emphasises the SAS environment. Major areas for discussion include controlling input and output, summarizing data, data transformations, and debugging.

SB/MBAN 5140 3.00: Visual Analytics & Modelling (New course)

This course is an introduction to the fundamental theories of visual communication design applied in data visualization and visual analytics. Students become familiar with data-driven decision making workflows and storytelling best practices. Major areas for discussion include visual design principals, data structures, taxonomy of data visualization models and weekly technical tutorials using the Tableau software.

SB/MBAN 5330 3.00: Applications in Big Data (New course)

This course establishes a foundation for data science in the business domain. Through in-class lecturing and hands-on projects, students learn fundamentals of data, data management and data-centric programming. The classes cover up-to-date applications in data science, such as Python, SQL and Hadoop.

SB/MBAN 5120 1.50: Data Management & Programming (Course title, description, and credit change)
The Data Management and Programming course examines advanced techniques for manipulating data. The course emphasises the SAS environment. Major areas for discussion include controlling input and output, summarizing data, data transformations, and debugging.

SB/MBAN 6110 3.00: Machine Learning I (Course title change)
This course is an introduction to machine learning techniques designed for students who will work with data scientists or invest in related ventures. The course introduces fundamental concepts and techniques for the analysis of data-centered business problems, the creation and evaluation of solutions, the data science strategies, the basic cycle of a data-mining project, and the integration into business strategies.

SB/MBAN 6120 3.00: Machine Learning II (Course title and description change)
This course is designed for business students who will pursue a career in the related industries. The course first teaches students Unix command line and Python programming language, which constitute the uniform computing environment for the following topics: data visualization; predictive modelling; relational database and SQL; Web APIs; big data, Hadoop and MapReduce; and Stochastic Search and Optimization methods. Towards the end of the course, various business cases from data science are introduced; examples may include: (i) online recommender systems; and (ii) Online targeted display advertising. Through in-class labs, the course gives students hands-on experience of advanced data science techniques. Students are required to bring own laptop to participate these in-class labs.

SB/MBAN 6300 3.00: Case Analysis and Presentation Skills
This course is designed to give students the opportunity to practice and develop their analytical thinking and presentation skills. The key objective of the course is to train students to participate successfully in national and international case competitions. A secondary objective is to prepare students to successfully interview for management consulting positions. Second year MBA students who enjoy analyzing cases and delivering presentations are encouraged to take the course.

SB/MBAN 6400 3.00: Multivariate Methods for Business Analytics
This course covers fundamental issues in various statistical methods. The course includes topics such as partialling and statistical control, interaction effects and multi-group analyses, curvilinear and piecewise linear effects, cluster analyses, multivariate regression and canonical correlation.

SB/OMIS 6350 3.00: Advanced Spreadsheet Modeling & Programming for Business
This course enables the design, development, and implementation of integrated business analysis systems by combining the extended functionality of spreadsheets with the Visual Basic for Applications (VBA) programming language. The course demonstrates the power of combining the advanced analysis and modelling techniques of spreadsheets and VBA through applications to several practical problems from disparate business functions.

Appendix 3: MBA Electives

SB/OMIS 6000 3.00: Models and Applications in Operational Research

This course provides a survey of selected topics in operational research (OR). Emphasis is placed on the practical application of OR tools rather than on the mathematical properties. Application areas include: financial planning and portfolio selection, production, priority planning and marketing. Topics include: linear programming and its applications; programming to achieve a set of goals or targets with applications in finance and production; capital budgeting and project selection; transportation and network models; and portfolio models.

SB/ECON 6210 3.00: Economic Forecasting and Analysis

An increasing number of organizations make explicit forecasts of the economic environment within which they will be operating as a basis for forward-looking plans. This course studies the main forecasting methods in relation to the length of the forecasting time horizon. Several systematic appraisals of past forecasts are reviewed.

SB/FINE 6310 3.00: Econometrics of Financial Markets

This empirical methods course focuses on the statistical techniques that are most often used in the analysis of financial markets. The list of topics include: statistical properties of asset returns, tests of asset pricing models, efficient market hypothesis, event study methodology, simulation methods, panel data analysis, and volatility estimation such as GARCH, value-at-risk, and time-varying correlations.

SB/MKTG 6050 3.00: Marketing Research

This course develops a managerial appreciation toward marketing research. The steps of the research process are delineated, starting from recognizing and specifying the informational needs of the decision-maker and definition of the problem, through research design, sample selection, preparation of the instrument, data collection, data reduction, analysis, presentation and follow-up. Integration of the concepts discussed is achieved through considering the broader requirements of a marketing information system. The method of instruction includes cases, discussion of readings and use of computer analysis packages. A major term project is required.

SB/ACTG 5210 1.50: Management Accounting

This course provides an introduction to management accounting techniques that are useful in management decision-making situations such as cost management, pricing special orders, determining service levels and performance appraisal. The non-applicability of external reporting figures for most management decisions is reviewed.

SB/ACTG 6350 1.50: Advanced Cost and Management Accounting

This course develops problem-solving skills for internal accounting applications. Topics covered include product mix decisions, managing scarce resources, product costing and pricing, budgeting, and international transfer pricing.

SB/FNSV 6700 3.00: Management of Risk in Canadian Financial Institutions

Risk is the fundamental element that influences the behaviour of financial institutions. FNSV 6700 provides a comprehensive introduction to risk management. Presented within the framework of financial institutions, the course covers the design and operation of a risk-management system, modelling and the interplay between internal oversight and external regulation. The theory of risk management (market, credit and operational risk) comes alive through practical case evaluation and presentations from senior executives in the risk management field. The course provides the essential analytical foundations of risk management in a way appropriate for those who do not have a mathematical background.

SB/FNSV 6990 1.50: Enterprise Risk Management and Strategy

Strategy and risk management are two sides of value creation for companies. Strategic choice must identify how these choices affect a broad array of stakeholders. A firm must be organized to recognize, measure, monitor, and disclose risks if it is to implement its strategy. This course will focus upon the strategic importance of risk management rather than more technical aspects.

SB/MGMT 6700 3.00: Project Management

This course covers the strategic, organizational and operational aspects of managing projects. Students learn to manage the technical, behavioural, political and cultural aspects of temporary groups performing unique tasks. Topics covered include: defining deliverables, formulating project strategy, effective group organization and management, dynamically allocating resources, managing without authority, and resolving conflict. Traditional cost and time management techniques are covered using contemporary software packages.

SB/MKTG 6150 3.00: Consumer Behavior

This course assists students in developing a thorough understanding of the behaviour of both organizational buyers and end consumers. The psychological, sociological, organizational and environmental factors that shape buyer behaviour are reviewed. Throughout the course, the implications for both marketing strategies and tactics are addressed.

SB/MKTG 6250 3.00: Business Marketing

The course explores the management of inter-firm relationships in a supply chain context, encompassing both supplier-manufacturer relationships, and the relationships between manufacturers and channel intermediaries. Students learn to see these relationships as strategic combinations of market competition, power and trust. Topics covered include firm buying behaviour, the design of distribution channels, strategic implications of forward and backward vertical integration, various technology applications in SCM, and franchising.

SB/MKTG 6300 3.00: Service Marketing

This course examines the need for marketing in service industries, and develops an understanding of the ways in which service marketing differs from product marketing, and improves students' understanding of how service characteristics affect the marketing function. Students learn to develop and implement marketing plans for service organizations.

SB/MKTG 6360 3.00: Marketing Metrics

This course focuses on developing the analytical skills required to successfully apply the principles of quantitative analysis to the marketing discipline. Students will learn the most common measurement methods currently being used in the marketing field.

SB/OMIS 6500 3.00: Global Operations and Information Management

Plant location, supplier selection and product and process development are no longer solely national issues. Hence, the first part of this course, we give an overview of global operations, including global supply chain management, network design for global operations and global entry strategies. This deals with how the use of information technology supports the management of global operations. Topics include value chain management, the concept of marketspace, business-to-business e-commerce, enterprise resource planning, and the effect of IT on R&D and collaboration, all in an international context.

SB/OMIS 6560 3.00: Supply Chain Management

This course is about how to make decisions that lead to the better design and management of supply chains. This often involves changing the network of relationships between suppliers and customers and other stakeholders as they design, contract, order, plan and coordinate goods and services together. This course covers essential quantitative supply chain management models, supportive information and

ecommerce technologies, environmentally and socially responsible practices and customer-supplier relationship management.

SB/OMIS 6955 3.00: Service Operations Management

This course is about designing and implementing service processes that respond effectively to customer requirements. Service processes involve high customer interaction, information-intensive products and the requirement for real-time responsiveness to a wide variety of customer demands. Designing, implementing and maintaining these processes in a competitive environment requires service-oriented organizations to have a new level of competence. This course concentrates on the problems and opportunities found in large companies in rapidly changing industries such as financial services. Best practice and generic problems in service delivery can be found in many industries, from manufacturing to retailing. Identifying effective strategies as well as specific techniques for process planning and control and project implementation are important in the development of managerial competence in service operations.

SB/ORGS 6350 3.00: Managing Change

As the environment of many business and non-profit organizations becomes increasingly complex and unstable, it is imperative that top managers be able to create a climate of flexibility and adaptability in their operations. This course surveys the major methods available to the modern manager for effectively managing the process of change and creating a general climate in which needed changes are sought and welcomed throughout the organization. The course emphasizes case studies and the discussion of alternative change-management models.

SB/ORGS 6500 3.00: Interpersonal Managerial Skills

Research demonstrates that people and their ability to work effectively together are critical success factors for organizations. This course focuses on specific personal and interpersonal skills for organizational (and professional) effectiveness. With an emphasis on experiential exercises, the course helps students develop skills such as communication; time, conflict and stress management; performance management; gaining influence; and self-awareness (including emotional intelligence).

SB/ORGS 6560 3.00: Negotiations

This course will provide students with insight into their own negotiation style and how to become a more effective negotiator. The course takes an experiential approach to exploring the concepts, theories, and psychology of negotiations. Students will gain knowledge of the different approaches to negotiations and the strategies and tactics unique to each. The course will provide students with opportunity to learn, practice and refine negotiation skills as well as equip them with the skills necessary to negotiate constructive resolution to conflict in the workplace.

SB/SGMT 6000 3.00: Strategic Management

This course examines business and corporate strategy. The focus is on strategic management, the process of choosing and defining purposes and objectives, formulating and implementing a viable strategy and monitoring strategic performance. It deals with the organization in its totality and demonstrates how and why the various functions of business are interdependent and need to be coordinated if the organization is to perform effectively. The course elaborates on the applicability of the strategic management discipline to a variety of sizes and types of organizations.

SB/SGMT 6250 3.00: Strategy Execution

This course addresses the managerial challenge of executing a firm's strategy, by focusing on organizational elements that must be aligned to support a strategy as well as the tremendous difficulty of doing so. These elements include, but are not limited to, organizational structures and control mechanisms that "match" the given strategy as well as strategic leadership. Students learn and apply theory regarding strategy execution by analyzing implementation and performance in specific firms.

SB/SGMT 6700 3.00: Strategic Capabilities Development

We bridge and extend SGMT 6000 and ORGS 5100, drawing on contemporary theory and practice to further develop the skills and knowledge needed for translating strategy into action. Strategic successes and challenges are viewed as opportunities for building and strengthening long-run dynamic strategic capabilities. Emphasis is placed on experiential and applied approaches.

Appendix 5: Consultation with MATH

From: "Mike Zabrocki" <zabrocki@mathstat.yorku.ca>
Date: November 16, 2016 at 11:32:52 AM EST
To: "Murat Kristal" <mkristal@schulich.yorku.ca>
Subject: Re: Consultation re. Program Change

Hi Murat,

I don't see any reason our program should object if you need to remove any of the courses from an elective list. Those decisions should be made to maintain the integrity of your program and they do seem appropriate in this case.

You should definitely delete MATH 6901 from the list because that course was deleted a few years ago and replaced with another.

The enrollment pressures on MATH 6910 and MATH 6911 make those courses difficult to get into unless they are required for the program.

-Mike

On Tue, Nov 15, 2016 at 6:12 PM, Murat Kristal <mkristal@schulich.yorku.ca> wrote:
Hi Mike:

I hope you are doing well. Please allow me to introduce myself. I am the Program Director of the Master of Business Analytics at Schulich.

I am in the process of finalising a change in the Master of Business Analytics program for submission to the relevant committees at Schulich and FGS. Feedback from employers indicates that we need to add further courses to the program, and this will have to come at the expense of the number of electives students are able to take. As you may remember, we currently have five MATH electives listed in the program, among other electives:

MATH 6627 - Practicum in Statistical Consulting
MATH 6633 - Introduction to the Theory and Methods of Time Series Analysis
MATH 6901 - Operations Research II
MATH 6910 - Stochastic Calculus in Finance
MATH 6911 - Numerical Methods in Finance

My AD ran a report and found that two students took 6627 in AY 2014 and 3 students took 6911 in 2015. None of the MBAN students took any of the other courses. I know that you are at capacity with 6911 already, given the demand from our joint Financial Engineering program. Would you be OK if I dropped the MATH electives from the MBAN program?

Thank you,

Murat Kristal, PhD
Associate Professor
Program Director, Master of Business Analytics
Operations Management & Information Systems
Schulich School of Business
York University
Toronto, Ontario
Canada

Faculty of Graduate Studies

New Course Proposal

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number

MBAN 5140

3. Credit Value

3.00

4. Long Course Title

Visual Analytics and Modelling

5. Short Course Title

Visual Analytics and Modelling

6. Effective Session

Fall 2017

7. Calendar (Short) Course Description

This course is an introduction to the fundamental theories of visual communication design applied in data visualization and visual analytics. Students become familiar with data-driven decision making workflows and storytelling best practices. Major areas for discussion include visual design principals, data structures, taxonomy of data visualization models and weekly technical tutorials using the Tableau software.

8. Expanded Course Description

According to IBM every single day we create 2.5 quintillion bytes of data. IBM argues that the exponential growth of data means that 90 percent of the data that exists in the world today has been created in the last two years. This data comes from everywhere: sensors used to gather climate data, posts to social media sites, digital pictures and videos, e-commerce transaction records, and cell phone GPS coordinates to name a few. This scale of data needs new approaches in processing and handling to convey useful information. Visual representation of data helps the viewer to see what she might have missed – trends, patterns and anomalies – if she had only looked at the naked source.

In this course students will learn how to use existing frameworks to examine, structure and mine different types of data and employ appropriate visualization models to tell compelling stories and/or aid the decision making process. Students will also become familiar with principals of visuals communication design, design thinking, user-centred design, user experience design, communication theories and human perception and cognition.

Learning Outcomes

Upon completion of this course, students will:

- Understand different data structure types and metrics
- Become familiar with the taxonomy of data visualization models for discovery and analysis

- Learn to choose and adopt appropriate visualization models, tools and workflows
- Learn to critically think about the target audience and the narrative flow
- Apply visual communication theories and best practices to achieve effective results
- Design and develop data visualization dashboards using the Tableau software

Weekly Schedule

Week 1

- Introduction, course review and requirements
- Intro to data visualization
 - Historic and contemporary examples
- Intro to Tableau software
 - Installing the software, exploring the interface and Tableau file types
- Project 1 introduced

Week 2

- Techniques and concepts of big data (part 1)
 - What is big data and how it is used; data science; ethics in big data
- Tableau tutorial
 - Connecting and joining data sources, reading Excel files and creating visualizations

Week 3

- Techniques and concepts of big data (part 2)
 - Big data sources and structures; preparing data for analysis
- Tableau tutorial
 - Changing the order of fields, summary operation and storylines
- Project 1 due
- Project 2 introduced

Week 4

- Guest speaker (TBD)
- Taxonomy of Data Visualization models (part 1)
 - Visualizing quantities (pie charts, bar charts, bubble charts, histograms, etc.)
- Tableau tutorial
 - Working with workbooks and worksheets
- Exercise 1 due

Week 5

- Taxonomy of Data Visualization models (part 2)
 - Visualizing locations (Choropleth maps, proportional symbol maps, cartograms, etc.)
- Tableau tutorial
 - Operators and built-in functions

Week 6

- Taxonomy of Data Visualization models (part 3)
 - Visualizing connections (Decision trees, flow charts, timelines, network diagrams, etc.)
- Tableau tutorial
 - Calculated and custom fields, selection, wildcard and condition filters
- Exercise 2 due

Week 7

- Visual communication design best practices (part 1)
 - Human perception and cognition
- Tableau tutorial
 - Changing the visual summary and creating heat maps
- Project 2 due

- Project 3 introduced

Week 8

- Visual communication design best practices (part 2)
 - User-centred design and hierarchy of information
- Tableau tutorial
 - Creating column/stacked bar charts, line charts and pie charts
- Exercise 3 due

Week 9

- Visual communication design best practices (part 3)
 - Typography and colour
- Tableau tutorial
 - Creating scatter plots, histograms and tree maps

Week 10

- Advanced topics in data visualization (part 1)
 - Storytelling and narrative flows
- Tableau tutorial
 - Annotating and formatting charts and adding trend lines
- Exercise 4 due

Week 11

- Advanced topics in data visualization (part 2)
 - Design for different mediums and screen sizes
- Tableau tutorial
 - Creating maps and dashboards

Week 12

- Class presentation of the final project
- External critique and feedback by a guest from the industry (TBD)
- Project #3 due

9. Evaluation

Project 1 - Landscape of data visualization tools (group)	10%
Project 2 - Evaluation of an existing data visualization project (individual)	30%
Project 3 - Multipage dashboard design and development (group)	40%
Exercises - Four take-home technical exercises (individual; 5% each)	20%

10. Integrated Courses

Not applicable

11. Rationale

As the business analytics industry is evolving, there is an increased need for our students to be able to present the results of their analysis in an easy to understand way. Visual analytics enables our students to tell their stories to executives in an effective way. This course is first of its kind offered at Schulich and there are not any overlaps with any other courses.

12. Faculty Resources

Borzu Talaie – Assistant Professor (CLA), Department of Design, School of the Arts, Media, Performance & Design, York University

Borzu Talaie is an award-winning designer and educator who has been in the field since 1993. His area of practice ranges from branding and print design to interaction design, information design and interactive

installations. He received his Master of Design degree in data visualization and visual analytics in 2014 from the Digital Futures program at OCAD University.

Borzu is the founder of *Borxu Design*, a multi-disciplinary studio where designers, engineers and entrepreneurs constantly examine the intersection of communication design and business to deliver distinctive solutions to their data-driven projects. *Borxu Design* clientele include media companies, large-scale construction companies and startups based in the Greater Toronto Area.

13. Cross-listed Courses

Not applicable

14. Bibliography and Library Statement

Börner, Katy and Polley, David E. Visual Insights: A Practical Guide to Making Sense of Data. The MIT Press, January 2014.

Cairo, Alberto. The Functional Art: An introduction to information graphics and visualization. New Riders, August 2012.

Cairo, Alberto. The Truthful Art: Data, Charts, and Maps for Communication. New Riders, February 2016.

Few, Stephen. Now You See It: Simple Visualization Techniques for Quantitative Analysis. Analytics Press, April 2009.

Few, Stephen. Signal: Understanding What Matters in a World of Noise. Analytics Press, June 2015.

Meirelles, Isabel. Design for Information: An Introduction to the Histories, Theories, and Best Practices Behind Effective Information Visualizations. Rockport Publishers, October 2013.

Mollerup, Per. Data Design: Visualising Quantities, Locations, Connections. Bloomsbury Visual Arts, July 2016.

Murray, Daniel G. Tableau Your Data!: Fast and Easy Visual Analysis with Tableau Software 2nd Edition. Wiley, January 2016.

Nussbaumer Knaflic, Cole. Storytelling with Data: A Data Visualization Guide for Business Professionals. Wiley, 2015.

Ware, Colin. Visual Insights: A Practical Guide to Making Sense of Data. Morgan Kaufmann, April 2008.

Ware, Colin. Information Visualization: Perception for Design 3rd Edition. Morgan Kaufmann. June 2012.

Wong, Dona M. The Wall Street Journal Guide to Information Graphics: The Do's and Don'ts Of Presenting Data Facts And Figures Reprint Edition. WW Norton, December 2013.

Yau, Nathan. Data Points: Visualization That Means Something. Wiley, April 2013.

15. Physical Resources

Classrooms equipped with computer consoles as available at Schulich will be more than sufficient for the facilitation of this course. No additional physical resources are required.

Faculty of Graduate Studies

New Course Proposal

Part B (Schulich Use Only)

16. Instructors and Faculty Coordinator

Initial instructor

Borzu Talaie – Assistant Professor (CLA), Department of Design, School of the Arts, Media, Performance & Design, York University

Alternative instructors

Not applicable.

Course coordinator

Murat Kristal, Associate Professor of Operations Management and Information Systems and Program Director, Master of Business Analytics

17. Specializations

Primary area or specialization

Master of Business Analytics

Secondary areas or specializations

Not applicable

18. Student Contact and Enrolment

Contact hours

Twelve (12) three (3) hour sessions over the course of the term.

Maximum enrolment

55

Expected enrolment

45

Evidence for enrolment expectations

Though not a core course, this course is geared specifically to students registered in the MBAN program. Therefore, the expectation is that most, if not all, MBAN students will register for this course. The course will also be available to MBA students.

19. Human Participants Research

N/A

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

<u>Wade Cook</u>	<u>March 27th, 2017</u>
Signature	Date

<u>Wade Cook</u>	<u>OMIS</u>
Name	Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

<u>Murat Kristal</u>	<u>November 3, 2016</u>
Signature	Date

<u>Murat Kristal</u>	<u>MBAN</u>
Name of Program Director	Program

Program Committee

This course change has received the approval of the relevant Program Committee.

<u>Markus Biehl</u>	<u>March 27th, 2017</u>
Signature	Date

<u>Markus Biehl</u>	<u>MPC/PCC</u>
Name of Committee Chair	Committee

Course Outline

Summer 2018

Classroom TBA

Instructor

Borzu Talaie
S337 Seymour Schulich Building
Tel: 736-5074
E-mail: borxu@yorku.ca
Office hours: TBA

Assistant

Paula Gowdie Rose
S337N Seymour Schulich Building
416-736-5074
pgowdierose@schulich.yorku.ca

Borzu Talaie is an award-winning designer and educator who has been in the field since 1993. His area of practice ranges from branding and print design to interaction design, information design and interactive installations. He received his Master of Design degree in data visualization and visual analytics in 2014 from the Digital Futures program at OCAD University.

Brief Description

This course is an introduction to the fundamental theories of visual communication design applied in data visualization and visual analytics. Students become familiar with data-driven decision making workflows and storytelling best practices. Major areas for discussion include visual design principals, data structures, taxonomy of data visualization models and weekly technical tutorials using the Tableau software.

Prerequisites/Corequisites/Course Exclusions: None.

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance.....	2
Course Material.....	2
Class-by-Class Syllabus	4
Written Assignments and Projects: Descriptions	6
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	6

Course Learning Outcomes

According to IBM, every single day we create 2.5 quintillion bytes of data. IBM argues that the exponential growth of data means that 90 percent of the data that exists in the world today has been created in the last two years. This data comes from everywhere: sensors used to gather climate data, posts to social media sites, digital pictures and videos, e-commerce transaction records, and cell phone GPS coordinates to name a few. This scale of data needs new approaches in processing and handling to convey useful information. Visual representation of data helps the viewer to see what she might have missed – trends, patterns and anomalies – if she had only looked at the naked source.

In this course students will learn how to use existing frameworks to examine, structure and mine different types of data and employ appropriate visualization models to tell compelling stories and/or aid the decision making process. Students will also become familiar with principals of visuals communication design, design thinking, user-centred design, user experience design, communication theories and human perception and cognition.

Learning Outcomes

Upon completion of this course, students will:

- Understand different data structure types and metrics
- Become familiar with the taxonomy of data visualization models for discovery and analysis
- Learn to choose and adopt appropriate visualization models, tools and workflows
- Learn to critically think about the target audience and the narrative flow
- Apply visual communication theories and best practices to achieve effective results
- Design and develop data visualization dashboards using the Tableau software.>

Deliverables at a Glance

In the table below, the impact of each task on your final grade for the course is indicated in the “% weight” column.

Assignment/Task	Quantity	% Weight	Total %	Author
Project #1	1	10	10	Group
Project #2	1	30	30	Individual
Project #3	1	40	40	Group
Exercises	4	5	20	Individual
			100%	

For details, see “Written Assignments/Projects...” (p. 5) and “Evaluation ...” (p. 6).

Course Material

The following is a list of reading resources on the subject of Visual Analytics and Modelling:

Börner, Katy and Polley, David E. Visual Insights: A Practical Guide to Making Sense of Data. The MIT Press, January 2014.

Cairo, Alberto. The Functional Art: An introduction to information graphics and visualization. New Riders, August 2012.

Cairo, Alberto. The Truthful Art: Data, Charts, and Maps for Communication. New Riders, February 2016.

Few, Stephen. Now You See It: Simple Visualization Techniques for Quantitative Analysis. Analytics Press, April 2009.

Few, Stephen. Signal: Understanding What Matters in a World of Noise. Analytics Press, June 2015.

Meirelles, Isabel. Design for Information: An Introduction to the Histories, Theories, and Best Practices Behind Effective Information Visualizations. Rockport Publishers, October 2013.

Mollerup, Per. Data Design: Visualising Quantities, Locations, Connections. Bloomsbury Visual Arts, July 2016.

Murray, Daniel G. Tableau Your Data!: Fast and Easy Visual Analysis with Tableau Software 2nd Edition. Wiley, January 2016.

Nussbaumer Knaflic, Cole. Storytelling with Data: A Data Visualization Guide for Business Professionals. Wiley, 2015.

Ware, Colin. Visual Insights: A Practical Guide to Making Sense of Data. Morgan Kaufmann, April 2008.

Ware, Colin. Information Visualization: Perception for Design 3rd Edition. Morgan Kaufmann. June 2012.

Wong, Dona M. The Wall Street Journal Guide to Information Graphics: The Do's and Don'ts Of Presenting Data Facts And Figures Reprint Edition. WW Norton, December 2013.

Yau, Nathan. Data Points: Visualization That Means Something. Wiley, April 2013.

The *Course Materials Database (CMD)* has been created within Schulich's Lotus Notes. It contains general information for Schulich students and information and materials specific to this course. Check it frequently.

Class-by-Class Syllabus

Topics, readings, and other preparations for every class are listed below

Note: If any changes in this schedule become necessary, notifications will be posted on the course CMD, and when changes need to be announced between classes, an email will be sent to students' Lotus Notes email accounts, notifying them of the change.

DATE (WEEK)	TOPIC(S) / ASSIGNED READING(S) / ASSIGNED WORK DUE
(1)	<u>Introduction, course review and requirements</u> <ul style="list-style-type: none">❖ Intro to data visualization<ul style="list-style-type: none">➤ Historic and contemporary examples❖ Intro to Tableau software<ul style="list-style-type: none">➤ Installing the software, exploring the interface and Tableau file types❖ Project #1 introduced
(2)	<u>Techniques and Concepts of Big Data (Part 1)</u> <ul style="list-style-type: none">❖ What is big data and how it is used; data science; ethics in big data❖ Tableau tutorial<ul style="list-style-type: none">➤ Connecting and joining data sources, reading Excel files and creating visualizations
(3)	<u>Techniques and Concepts of Big Data (Part 2)</u> <ul style="list-style-type: none">❖ Big data sources and structures; preparing data for analysis❖ Tableau tutorial<ul style="list-style-type: none">➤ Changing the order of fields, summary operation and storylines❖ Project 2 introduced <p>Assignment Due:</p> <ul style="list-style-type: none">▪ Project #1
(4)	<u>Taxonomy of Data Visualization Models (Part 1)</u> <ul style="list-style-type: none">❖ Visualizing quantities (pie charts, bar charts, bubble charts, histograms, etc.)❖ Tableau tutorial<ul style="list-style-type: none">➤ Working with workbooks and worksheets❖ Guest speaker (TBD) <p>Assignment Due:</p> <ul style="list-style-type: none">▪ Exercise #1
(5)	<u>Taxonomy of Data Visualization Models (Part 2)</u> <ul style="list-style-type: none">❖ Visualizing locations (Choropleth maps, proportional symbol maps, cartograms, etc.)❖ Tableau tutorial<ul style="list-style-type: none">➤ Operators and built-in functions
(6)	<u>Taxonomy of Data Visualization Models (Part 3)</u> <ul style="list-style-type: none">❖ Visualizing connections (Decision trees, flow charts, timelines, network

DATE (WEEK)	TOPIC(S) / ASSIGNED READING(S) / ASSIGNED WORK DUE
	<p>diagrams, etc.)</p> <ul style="list-style-type: none"> ❖ Tableau tutorial <ul style="list-style-type: none"> ➤ Calculated and custom fields, selection, wildcard and condition filters <p>Assignment Due:</p> <ul style="list-style-type: none"> ▪ Exercise #2
(7)	<p><u>Visual Communication Design Best Practices (Part 1)</u></p> <ul style="list-style-type: none"> ❖ Human perception and cognition ❖ Tableau tutorial <ul style="list-style-type: none"> ➤ Changing the visual summary and creating heat maps <p>Assignment Due:</p> <ul style="list-style-type: none"> ▪ Project #2
(8)	<p><u>Visual Communication Design Best Practices (Part 2)</u></p> <ul style="list-style-type: none"> ❖ User-centred design and hierarchy of information ❖ Tableau tutorial <ul style="list-style-type: none"> ➤ Creating column/stacked bar charts, line charts and pie charts <p>Assignment Due:</p> <ul style="list-style-type: none"> ▪ Exercise #3
(9)	<p><u>Visual Communication Design Best Practices (Part 3)</u></p> <ul style="list-style-type: none"> ❖ Typography and colour ❖ Tableau tutorial <ul style="list-style-type: none"> ➤ Creating scatter plots, histograms and tree maps
(10)	<p><u>Advanced Topics in Data Visualization (Part 1)</u></p> <ul style="list-style-type: none"> ❖ Storytelling and narrative flows ❖ Tableau tutorial <ul style="list-style-type: none"> ➤ Annotating and formatting charts and adding trend lines <p>Assignment Due:</p> <ul style="list-style-type: none"> ▪ Exercise #4
(11)	<p><u>Advanced Topics in Data Visualization (Part 2)</u></p> <ul style="list-style-type: none"> ❖ Design for different mediums and screen sizes ❖ Tableau tutorial <ul style="list-style-type: none"> ➤ Creating maps and dashboards
(12)	<ul style="list-style-type: none"> ❖ Class presentation of the final project ❖ External critique and feedback by a guest from the industry (TBD) <p>Assignment Due:</p> <ul style="list-style-type: none"> ▪ Project #3

Written Assignments and Projects: Descriptions

Course work includes three (3) projects and four assignments.

Due Date

Week 3	<p><u>Project #1</u> Landscape of data visualization tools Students will work in small groups to create a comprehensive report on existing and/or emerging data analytic tools, their use cases and best practices. <i>Max length: 1200 words supported by diagrams/or and screenshots.</i> <i>Value: 10%</i></p>
Week 7	<p><u>Project #2</u> Evaluation of an existing data visualization project Upon the approval of the chosen topic by the instructor, each student will research, analyze and present a data visualization project. The focal point of this assignment will be the taxonomy of data visualization models used for discovery, analysis and reporting. <i>Max length: 1500 words supported by diagrams and/or screenshots.</i> <i>Value: 30%</i></p>
Week 12	<p><u>Project #3</u> Multipage dashboard design and development For the final project, students will form small groups to visualize and report on a given financial dataset using the Tableau software. Evaluation criteria is based on the narrative flow, appropriate choice of visualization model(s) and application of visual communication theories and best practices. <i>Max length: Five dashboards design in Tableau software + a supportive executive report page.</i> <i>Value: 40%</i></p>
Week 4 Week 6 Week 8 Week 10	<p><u>Exercises</u> An extension of the weekly in-class technical tutorials, these take-home assignments challenge students to further explore and employ advanced features of the Tableau software. References are available both online and in print. <i>Max length: Various number of dashboards depending on the assignment (not exceeding three).</i> <i>Value: 4 x 5% = 20%</i></p>

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, elective courses are expected to have a mean grade between 5.2 and 6.2.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consult your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services. For counseling & disability services, contact Student Services or see

<http://www.yorku.ca/cds/>.

MEMORANDUM

Peter F. Bronfman Business Library

TO: Associate Professor Murat Kristal, Finance Operations Management and Information Systems, Director of Master of Business Analytics (MBAN) Program, Schulich School of Business

SUBJECT: Library Statement for **MBAN 5140 3.00: Visual Analytics and Modelling**

FROM: Xuemei Li, Business Librarian, Bronfman Business Library

DATE: December 12, 2016

This proposed MBAN course is an introduction to the fundamental theories of visual communication design applied in data visualization and visual analytics. Students become familiar with data-driven decision making workflows and storytelling best practices. Major areas for discussion include visual design principals, data structures, taxonomy of data visualization models and weekly technical tutorials using the Tableau software. The Libraries are able to support this course with a good collection including print and electronic books, print and electronic journals in subject areas relevant to MBAN 5140.

Keyword searching of the York University Libraries' catalogue reveals relevant subject headings such as: Visual Perception, Visualization, Information Visualization, Graphics Methods, Visual Communication and Business Presentation. Books 24x7 – a full-text electronic resource, offers several titles relevant to this course.

The books listed in this proposal which are not currently in our collections have been ordered and the books will be added to our collections before the course is delivered.

The instructor is encouraged to use the Libraries' reserve service to ensure equitable student access to all the required reading books.

Faculty of Graduate Studies

New Course Proposal

The following information is required for all new course proposals. To facilitate the review/approval process, please use the headings below, REPLACING each <explanation> with your intended text.

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number

MBAN 5210

3. Credit Value

3.00

4. Long Course Title

Predictive Modelling II

5. Short Course Title

Predictive Modelling II

6. Effective Session

Fall 2018

7. Calendar (Short) Course Description

This course provides advanced tools needed to build models from data sets, validate models, and make predictions. The course emphasizes the SAS environment. Major areas for discussion include analysis of variance, regression, decision trees, and predictive modelling. The course emphasizes both theory and practice, allowing students to use statistical theory for purposes of business case analysis.

8. Expanded Course Description

Same as above

9. Evaluation

Course work includes one assignment, two midterm exams and a final exam.

Assignment/Task	Quantity	% Weight	Total %	Author
Assignment	1	20%	20%	Individual
Midterm Exam #1	1	20%	20%	Individual
Midterm Exam #2	1	20%	20%	Individual
Final exam	1	40%	40%	Individual
			100%	

For details, see “Written Assignments/Projects and Exam[s]: Descriptions” (p. 5).

10. Integrated Courses

N/A

11. Rationale

In conjunction with the Major Program Change to the MBAN Program, this course will enhance the understanding of advanced predictive modelling of our MBAN students. It will provide them with more details that are used in analytics industry.

12. Faculty Resources

This course will be taught by SAS Instructors who are currently teaching in the MBAN Program. No additional faculty resources will be needed.

13. Cross-listed Courses

N/A

14. Bibliography and Library Statement

See attached.

15. Physical Resources

No additional physical resources needed.

Faculty of Graduate Studies New Course Proposal Part B (Schulich Use Only)

16. Instructors and Faculty Coordinator

Initial instructor

David Yeo, PhD

Alternative instructors

Murat Kristal, Director, MBAN Program

Course coordinator

Murat Kristal, Director, MBAN Program

17. Specializations

Primary area or specialization

MBAN Program

Secondary areas or specializations

N/A

18. Student Contact and Enrolment

Contact hours

36 hours

Maximum enrolment

55

Expected enrolment

55

Evidence for enrolment expectations

The MBAN program is growing year over year. This year we have 51 students in the program.

19. Human Participants Research

N/A

20. Conditions for Approval

If this proposal is for a new elective course, please indicate which one of the two following conditions required by Faculty Council applies:

a) The Area is deleting courses with at least the same total number of credits.

N/A

b) Provide a convincing case for the proposed course.

See Major Program Change to MBAN Program Document.

Course Originator

Murat Kristal
Signature

March 16th, 2017
Date

Murat Kristal
Name

Supporting Faculty Members

The course originator should consult with other interested parties and obtain their support. Support should be obtained from other units of the university if their interests are related to this course.

The faculty members whose names appear below confirm that they have examined this course proposal. They feel it is a worthwhile addition to the SSB curriculum and does not, to their knowledge, significantly duplicate the content of existing courses.

Marcia Annisette
Name

Scott Yeomans
Name

Rick Irving
Name

Zhepeng (Lionel) Li
Name

David Johnston
Name

Adam Diamant
Name

Marshall Rice
Name

<Name of faculty member>
Name

Ashwin Joshi
Name

<Name of faculty member>
Name

Approvals:**Area or Specialization**

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook	March 27th, 2017
_____	_____
Signature	Date
Wade Cook	OMIS
_____	_____
Name	Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

<i>Murat Kristal</i>	<i>March 16, 2017</i>
_____	_____
Signature	Date
Murat Kristal	MBAN
_____	_____
Name of Program Director	Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl	March 27th, 2017
_____	_____
Signature	Date
Markus Biehl	MPC/PCC
_____	_____
Name of Committee Chair	Committee

Course Outline

Fall 2018

Mondays, 11:30am-2:30pm
N109 SSB

Instructor

David Yeo
S337 Seymour Schulich Building (SSB)
Email: dyeo@schulich.yorku.ca
Office hours: TBA

Assistant

Paula Gowdie Rose
S337N Seymour Schulich Building
416-736-5074
pgowdierose@schulich.yorku.ca

David Yeo graduated (summa cum laude) from McMaster University with a double honors degree in psychology and sociology. His Master's degree was in Measurement, Evaluation and Computer Applications, and his doctorate was in Cognitive Science. Both graduate degrees were obtained at the University of Toronto, where David specialized in artificial intelligence and neural networks. David has worked in the artificial intelligence department at Canadian Pacific Rail, as a data miner with IBM, and for the last 15 years he has been with SAS institute (Canada) Inc., primarily as an instructor. He teaches both introductory and advanced statistics and data mining courses. David has also written several SAS courses.

Program Support will be provided by: Mark Morreale, Academic Program Manager, SAS Canada, Inc. **Mark Morreale** is an Epidemiologist with over 20 years of experience in the Canadian healthcare system. Mark is also a professor of Epidemiology and Biostatistics at McMaster University, where he lectures on Clinical Decision Support, Health Care Performance, Quality and Health Research Methodologies. Examples of his research include: Evaluation of Care Maps, ER wait times, Patient Safety and Quality of Care. Before joining SAS, Mark worked in several information management positions in the Pharma sector, Hospitals, Ontario Ministry of Health and Health Canada. In 2007-2009 Mark served as Co-Chair for the Hamilton Niagara Haldimand Brant Integrated Decision Support System-A Data Warehouse and BI resource that provides consolidated reporting and analysis for Hospitals, CCACs, and CHCs across two LHINs.

Brief Description

This course provides advanced tools needed to build models from data sets, validate models, and make predictions. The course emphasizes the SAS environment. Major areas for discussion include analysis of variance, regression, decision trees, and predictive modelling. The course emphasizes both theory and practice, allowing students to use statistical theory for purposes of business case analysis.

Pre-requisite: MBAN 5120 3.00

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance	2
Course Material	2
Class-by-Class Syllabus.....	3
Written Assignments/Projects and Exam[s]: Descriptions	5
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	5

Course Learning Outcomes

The course provides an advanced understanding to the key statistical techniques used for data analysis and predictive modeling. As students learn techniques, they apply them to solving business cases, gaining mastery of the statistical toolkit and an appreciation for which technique to use in each situation. Upon completion of the course, the students will possess the ability to build working models for business problems and to use them to give cogent, data-driven business advice.

Organization of the Course

Pedagogy

The course combines readings in statistical theory with case exercises that provide an opportunity for application. The course builds statistical concepts in sequence, starting with analytical challenges then moving into advanced linear regression, advanced logistic regression, and finally, modeling nonlinear relationships. The course provides sufficient statistical theory to understand the techniques but primarily emphasizes the appropriate context and method for applying the techniques.

Prior to each class, students prepare a case exercise in which they apply tools from prior lectures, and the readings, to solving a business problem. The instructor will call on students to discuss their approaches in class. Class time will also be used for discussing the statistical concepts.

Deliverables at a Glance

Course work includes one (1) assignment, two (2) midterm exams and a final exam.

Assignment/Task	Quantity	% Weight	Total %	Author
Assignment	1	20%	20%	Individual
Midterm Exam #1	1	20%	20%	Individual
Midterm Exam #2	1	20%	20%	Individual
Final exam	1	40%	40%	Individual
			100%	

For details, see “Written Assignments/Projects and Exam[s]: Descriptions” (p. 5).

Course Material

Required reading for this course includes the following book, which is available for purchase from the York University bookstore (<http://bookstore.blog.yorku.ca>):

Battersby, M. (2016). Is that a Fact?: A Field Guide to Statistical and Scientific Information, Second Edition, Broadview Press, Peterborough, Ontario. ISBN: 978-1-554812-44-8.

Additionally, a Course Kit will be provided by SAS Canada for this course.

The *Course Materials Database (CMD)* has been created within Schulich's Lotus Notes. It contains general information for Schulich students and information and materials specific to this course. Check it frequently.

Class-by-Class Syllabus

Topics, readings, and other preparations for every class are listed below

Note: If any major changes in this schedule become necessary, notifications will be posted on the course CMD. And when changes need to be announced between classes, an email will be sent to students' Lotus Notes email accounts, notifying them of the change.

DATE/WEEK	TOPIC(S) /ASSIGNED READING(S) /ASSIGNED WORK DUE
Week (1)	<p><u>Introduction, Course Requirements, and Course Overview</u></p> <p><u>Preparing the Input Variables</u></p> <ul style="list-style-type: none"> • Imputing Missing Values • Collapsing Categorical Inputs • Collinearity Reduction • Variable Screening <p>Read: Chapter 1 in the Course Kit</p>
Week (2)	<p><u>Advanced Linear Regression</u></p> <ul style="list-style-type: none"> • Review of General Linear Regression • Subset Selection <p>Read: Chapter 2 in the Course Kit</p>
	<p><u>Advanced Linear Regression (continued)</u></p> <ul style="list-style-type: none"> • Information Criterion-Based Subset Selection • Scoring Predictive Models <p>Read: Chapter 3 in the Course Kit</p>
Week (3)	<p><u>Assignment is handed out</u></p> <p><u>Advanced Logistic Regression</u></p> <ul style="list-style-type: none"> • Review of Logistic Regression

DATE/WEEK	TOPIC(S) /ASSIGNED READING(S) /ASSIGNED WORK DUE
Week (4)	<ul style="list-style-type: none"> Adjusting for Oversampling <p>Read: Chapter 4 in the Course Kit</p>
Week (5)	No Class
Week (6)	<u>Midterm Exam #1</u>
Week (7)	<p><u>Advanced Logistic Regression (continued)</u></p> <ul style="list-style-type: none"> The All-Possible Method of Subset Selection Measuring Classifier Performance <p>Read: Chapter 5 in the Course Kit</p> <p>Assignment is due</p>
Week (8)	<p><u>Modeling Nonlinear Relationships</u></p> <ul style="list-style-type: none"> Polynomial Regression <p>Read: Chapter 6 in the Course Kit</p>
Week (9)	<p><u>Modeling Nonlinear Relationships (continued)</u></p> <p>Non-Parametric Regression</p> <p>Read: Chapter 7 in the Course Kit</p>
Week (10)	<u>Midterm Exam #2</u>
Week (11)	<p><u>Modeling Nonlinear Relationships (continued)</u></p> <ul style="list-style-type: none"> Nonlinear Regression <p>Read: Chapter 8 in the Course Kit</p> <p><u>Modeling Nonlinear Relationships (continued)</u></p>
Week (12)	<ul style="list-style-type: none"> Decision Trees <p>Read: Chapter 9 in the Course Kit</p>
Week (13)	<p><u>Modeling Nonlinear Relationships (continued)</u></p> <ul style="list-style-type: none"> Neural Networks

DATE/WEEK	TOPIC(S) /ASSIGNED READING(S) /ASSIGNED WORK DUE
	Read: Chapter 10 in the Course Kit
	<u>Final Exam</u>

Written Assignments/Projects and Exam[s]: Descriptions

Course work includes an assignment, two (2) midterm exams and a final exam.

Due Date

Assignment

Students complete one (1) hand-in assignment over the duration of the course. The assignment will be essay, maximum 5 pages long, double spaced, and using an 11 point font. Any student submitting an improperly referenced essay will be assigned a grade of zero for that assignment, regardless of its merit. Plagiarism on either paper will result in a grade of zero for the assignment portion of the course, and possible further disciplinary action.

Late Delivery

Students will lose 5% of their assignment grade for every day the assignment is delayed.

Value: 20%

Midterm Exam #1

The midterm exam covers the material taught in the first half of the course. It takes place during class-time.

Value: 20%

Midterm Exam #2

The midterm exam covers the material taught in the first half of the course. It takes place during class-time.

Value: 20%

Please refer to the exam Schedule

Final Exam

The material for the final exam incorporates all the techniques discussed in the course. It consists of multiple choice and problem-solving questions. A scientific calculator will be required in order to answer the problem solving questions. The three-hour exam will take place at a time and place to be announced.

Value: 40%

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, sections of required core courses are normally expected to have a mean grade between 4.7 and 6.1.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consult your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Student Handbook and on the Student Services & International Relations Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services. For counseling and disability services, contact Student Services or see <http://cds.info.yorku.ca/>.

Exams (Absence from)

Midterm. Students who miss a midterm examination must contact their course instructor within 24 hours and provide the course instructor with documentation substantiating the reason for the absence. A copy of the documentation must also be submitted to Student Services; it will be placed in the student's file.

Final. Within 24 hours of missing a final examination, students must contact the Director of Student Services at (416) 736-5060 and must also contact their course instructor. Formal, original documentation regarding the reason for missing the exam must be submitted to the Director of Student Services (SSB Room W262) within 48 hours of missing the final exam. Students who miss a final exam due to illness must have their doctor complete an "Attending Physician's Statement." For a copy of this document, visit <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>.

MEMORANDUM

Peter F. Bronfman Business Library

TO: Associate Professor Murat Kristal, Operations Management and Information Systems, Director of Master of Business Analytics Program, Schulich School of Business

SUBJECT: Library Statement for **MBAN 5210 S 3.00: Predictive Modelling II**

FROM: Xuemei Li, Business Librarian
Peter F. Bronfman Business Library

DATE: March 15, 2017

Predictive Modelling II

The course provides an advanced understanding to the key statistical techniques used for data analysis and predictive modelling within a SAS environment. As students learn techniques, they apply them to solving business cases, gaining mastery of the statistical toolkit and an appreciation for which technique to use in each situation. Upon completion of the course, the students will possess the ability to build working models for business problems and to use them to give cogent, data-driven business advice. The Libraries are able to support this course with a good collection including print and electronic books, print and electronic journals, together with various databases in subject areas relevant to MBAN 5210.

Relevant SAS and Statistics print books are located primarily at the Steacie Science and Engineering Library, and also with a fair number located at the Scott Library and a very small number housed at the Bronfman Business Library. The print academic book collection is supplemented nicely by a range of different practitioner e-book collections, e.g. *Springer Link* and *Scholars Portal Books* and more which are offered through e-book collections such as *Books 24x7* and *Safari Books Online*.

Two copies of the required textbook listed in this proposal have been ordered through Gobi and the books will be added to our collections before the course is delivered. The instructor is encouraged to use the Libraries' reserve service to ensure equitable student access to the required textbooks.

Faculty of Graduate Studies

New Course Proposal

1. Program

Schulich Master of Business Analytics Program (MBAN)

2. Course Number

MBAN 5330

3. Credit Value

3.00

4. Long Course Title

Big Data Fundamentals and Applications

5. Short Course Title

Big Data Fundamentals and Applications

6. Effective Session

Summer 2018

7. Calendar (Short) Course Description

This course establishes a foundation for data science in the business domain. Through in-class lecturing and hands-on projects, students learn fundamentals of data, data management and data-centric programming. The classes cover up-to-date applications in data science, such as Python, SQL and Hadoop.

8. Expanded Course Description

This course builds on the foundation of data science and introduces useful applications to leverage data in current business environments. It is designed for students who are interested in data analytics. The lectures and labs will cover Data Structure, Data Organization, Data Storage, Data Query and Data Manipulations using a wide range of tools for database administration, data warehousing, parallel computing, and data-centric programming, such as Python, SQL, Oracle Data Mart Suite and Hadoop.

Lectures will have a significant interactive component. Your attendance is expected. If you have a laptop, it is recommended that you bring it along to all lectures, particularly those where there will be a greater emphasis on computation. Students will earn credit for active participation in course activities.

Lab sessions and projects are arranged for interactive learning. Students can gain hands-on experience with useful tools that implement the lectured concepts, models, and methods. It also allows immediate feedback on the application of teaching material to realistic problem solving.

Readings from the text or supplementary materials will be assigned for each of the topics in the course. These are useful for preparation prior to lecture as well as to reinforce class concepts after each session.

Practice problems are selected exercises for you to work on to gain experience in each of the problem solving areas. They will not be graded. Solutions may be posted on the course website. You may choose to do as many of these problems as you like, and may work on them individually or in groups. In order to maximize your learning, you should attempt the problem individually before working with others. While the suggested problems are a good reflection of the material covered in the course, they are not necessarily comprehensive, and students are encouraged to work on additional problems beyond those suggested.

Weekly Schedule

DATE/WEEK	TOPICS/ASSIGNED READINGS/ASSIGNED WORK DUE
Week #1	<u>Data Structure I (with Python)</u> <ul style="list-style-type: none">• Introduction: data analytics and big data• Data basics: Variables, Data Types, Operators• Data structure basics: Lists (set, array, string), Stacks, Queues
Week #2	<u>Data Structure II (with Python)</u> <ul style="list-style-type: none">• Advanced Data structures: Trees, Dictionary, Graphs• Processing: IF-then, Loops, Recursions
Week #3	<u>Guest Lecture: Deep Learning Algorithms</u> <u>Algorithm Fundamentals</u> <ul style="list-style-type: none">• Sorting, Searching, Divide and conquer, Hashing• Complexity analysis <p>Deliverables:</p> <ul style="list-style-type: none">• Homework assignment 1 on data structure
Week #4	<u>Lab I: Python Programming for Data Analytics</u> <ul style="list-style-type: none">• Python Programming• Case: Data preparations for<ul style="list-style-type: none">○ Financial fraud detection○ Viral marketing campaign
Week #5	<u>Relational Database Fundamentals</u> <ul style="list-style-type: none">• Entity Relational Model, Enhanced ER model• 3-schema• Logical Database Design <p>Deliverables:</p> <ul style="list-style-type: none">• Group project 1 on data structure and algorithm design
Week #6	<u>Relational Database Management</u> <ul style="list-style-type: none">• Data Integrity: integrities and normalizations• Data operating: SQL Language (DDL, DML, DCL)• Procedures
Week #7	<u>Lab II: Data Analytics with Relational Databases (with Python SQL)</u> <ul style="list-style-type: none">• Logical Design• Implementation (Population and Normalizations)• Reports view <p>Deliverables:</p> <ul style="list-style-type: none">• Homework assignment 2 on relational database
Week #8	<u>Data Warehousing Fundamental</u> <ul style="list-style-type: none">• Dimensional Model• ETL <p>Deliverables:</p> <ul style="list-style-type: none">• Group project 2 on relational database design and

DATE/WEEK	TOPICS/ASSIGNED READINGS/ASSIGNED WORK DUE
	implementation
Week #9	<u>Lab III: Data Warehousing (with Oracle Data Mart Suite)</u> <ul style="list-style-type: none"> • Designer, Builder, Discoverer • Case: Retail Case Study/Customer Relationship Management Deliverables: <ul style="list-style-type: none"> • Homework assignment 3 on data warehousing
Week #10	<u>Guest Lecture: Smart Data Grid</u> <u>Distributed Database Fundamentals (with Hadoop)</u> <ul style="list-style-type: none"> • Distributed data storage and Analysis (MapReduce, HDFS) • Distributed data operations
Week #11	<u>Lab IV: Data Analytics (with Hadoop)</u> <ul style="list-style-type: none"> • Hadoop • Case: Financial Services Deliverables: <ul style="list-style-type: none"> • Homework assignment 4 on distributed data storage and processing
Week #12	<u>Guest Lecture: Block chain</u> <u>Advanced Technique in Big Data</u> <ul style="list-style-type: none"> • Introduction to advanced data techniques: Block chain etc. • NoSQL DB for Python
FINAL EXAM – PLEASE REFER TO THE EXAM SCHEDULE (3 hours)	

9. Evaluation

The evaluation measures are comprised of individual assignments, group projects, written exam and class participation. Course deliverables are broken down as in the following table.

Deliverable	Quantity	% Weight	Total %	Author
Assignments	4	5	20	Individual
Projects	2	10	20	Group
Final Exam	1	45	45	Individual
Class Participation	1	15	15	Individual

10. Integrated Courses

Not applicable

11. Rationale

The proposed course emphasizes data management and manipulation, which overcome the gap in between data collection and data analysis. While data collection and data analysis are well addressed, this missing link becomes imperative to add in our curriculum, given the advent of the big data era for business analytics in general. The covered topics in databases, data warehousing, and data-centric programming are indispensable knowledge for industrial and academia positions in data analytics, a vital area of business

analytics. Through the classes and hands-on projects, students will not only benefit from the knowledge on paper but also learn the cutting-edge tools and applications of data science in the scenarios of current business. The proposed course does not overlap with existing ones. Nevertheless, it can serve as a useful ground for existing Data Science I and II (i.e., MBAN 6110 & 6120), where the focal objective lies in the stage of data analysis and data mining. It allows MBAN 6110 & 6120 to focus on the core materials - data mining and value generation, with prepared data. In terms of the teaching tools, this course primarily uses Python and SQL, the knowledge of which is seamlessly applied to MBAN 6110 & 6120.

12. Faculty Resources

This course will be taught by tenure track faculty who are experts in this field.

Zhepeng (Lionel) Li, PhD.

Short Bio: Zhepeng (Lionel) Li holds a PhD degree, with a specialization in quantitative business analytics, from the David Eccles School of Business, University of Utah. His research method emphasizes machine learning and analytics techniques, which are often associated with big data. Including OMIS 2010, Lionel has taught courses ranging from analytical to technological topics in business schools.

Teaching Frequency: one term per academic year

13. Cross-listed Courses

Not applicable

14. Bibliography and Library Statement

- 1) *Narasimha Karumanchi. 2015. Data Structure and Algorithmic Thinking with Python. CareerMonk.*
- 2) *Ralph Kimball, Margy Ross. 2013. The Data Warehouse Toolkit. Wiley.*
- 3) *Krish Krishnan. 2013. Data Warehousing in the Age of Big Data. Morgan Kaufmann.*
- 4) *Benjamin Bengfort, Jenny Kim. 2016. Data Analytics with Hadoop: An Introduction for Data Scientist. O'Reilly.*
- 5) *Tom White. 2012. Hadoop: The Definitive Guide. O'Reilly*

15. Physical Resources

The physical resources suggested for this course:

A classroom with a computer console as available at Schulich, and is equipped with electrical outlets to support laptops and accommodate 55 students.

A computer lab with 55 desktops. If the computer lab can be reserved for the term, then the classroom will not be needed.

Database/Data warehousing management software, e.g., Oracle Data Mart (Open source) and Hadoop (Open Source).

Python Programming tools, e.g., Python (compiler & IDE) + SQL library (Open Source).

Faculty of Graduate Studies
New Course Proposal
Part B (Schulich Use Only)

16. Instructors and Faculty Coordinator

Initial instructor

Zhepeng (Lionel) Li

Alternative instructors

Michael Chen

Course coordinator

Murat Kristal

17. Specializations

Primary area or specialization

Master of Business Analytics (MBAN)

Secondary areas or specializations

Not applicable

18. Student Contact and Enrolment

Contact hours

Twelve (12) three (3) hour sessions over the course of the term.

Maximum enrolment

55

Expected enrolment

55

Evidence for enrolment expectations

This will be a core course for the MBAN Program. In the coming years, we are planning to open a second section for the program.

19. Human Participants Research

Not applicable

20. Conditions for Approval

If this proposal is for a new elective course, please indicate which one of the three following conditions required by Faculty Council applies:

a) The Area is deleting courses with at least the same total number of credits.

Not applicable

b) Provide a convincing case for the proposed course.

This course is a part of a major program change in the MBAN Program. Please see the Rationale, item 11.

Course Originator

Signature

November 7, 2016

Date

Zhepeng (Lionel) Li

Name

Supporting Faculty Members

The course originator should consult with other interested parties and obtain their support. Support should be obtained from other units of the university if their interests are related to this course.

The faculty members whose names appear below confirm that they have examined this course proposal. They feel it is a worthwhile addition to the SSB curriculum and does not, to their knowledge, significantly duplicate the content of existing courses.

Moren Levesque

Name

David Johnston

Name

Adam Diamant

Name

Henry Kim

Name

Ric Irving

Name

M. David Rice

Name

Wade Cook

Name

Mark Kamstra

Name

Name

Name

Approvals

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook

Signature

March 27th, 2017

Date

Wade Cook

Name

OMIS

Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Murat Kristal

Signature

March 16, 2017

Date

Murat Kristal

Name of Program Director

MBAN

Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl

Signature

March 27, 2017

Date

Markus Biehl

Name of Committee Chair

PCC/MPC

Committee

Course Outline:

Summer 2018

Dates/times TBA

Location TBA

Instructor

Zhepeng (Lionel) Li

S337J SSB

Email: zli@schulich.yorku.ca

Office Hours: TBD

Assistant

Paula Gowdie Rose

S337N SSB

416-736-5074

pgowdierose@schulich.yorku.ca

Zhepeng (Lionel) Li holds a PhD degree, with a specialization in quantitative business analytics, from the David Eccles School of Business, University of Utah. His research method emphasizes machine learning and analytics techniques, which are often associated with big data. Including OMIS 2010, Lionel has taught courses ranging from analytical to technological topics in business schools.

Brief Description

This course establishes a foundation for data science in the business domain. Through in-class lecturing and hands-on projects, students learn fundamentals of data, data management and data-centric programming. The classes cover up-to-date applications in data science, such as Python, SQL and Hadoop.

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance.....	3
Course Material.....	3
Student Preparation for Class and Class Participation: Expectations.....	4
Class-by-Class Syllabus.....	5
Written Assignments/Projects and Exam[s]: Descriptions.....	6
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams.....	7

Course Learning Outcomes

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Lectures will have a significant interactive component. Your attendance is expected. If you have a laptop, it is recommended that you bring it along to all lectures, particularly those where there will be a greater emphasis on computation. Students will earn credit for active participation in course activities. Lab sessions and projects are arranged for interactive learning. Students can gain hands-on experience with useful tools that implement the lectured concepts, models, and methods. It also allows immediate feedback on the application of teaching material to realistic problem solving.

Readings from the text or supplementary materials will be assigned for each of the topics in the course. These are useful for preparation prior to lecture as well as to reinforce class concepts after each session.

Practice problems are selected exercises for you to work on to gain experience in each of the problem solving areas. They will not be graded. Solutions may be posted on the course website. You may choose to do as many of these problems as you like, and may work on them individually or in groups. In order to maximize your learning, you should attempt the problem individually before working with others. While the suggested problems are a good reflection of the material covered in the course, they are not necessarily comprehensive, and students are encouraged to work on additional problems beyond those suggested.

Getting Help

Email: Email the instructor with any queries about the course such as administrative issues, questions regarding the grading of the assignments, midterm or final exam, or if you have brief questions about the material. **Please put MBAN TBD, the section #, your full name and brief heading (i.e., description of what the email is about) as the first part of the subject line in all e-mail correspondence.** We will try to respond within two business days (48 hours) but if you do not get a response within this time frame, please send another email. For any other issues, please come speak with the instructor during office hours. Please be professional in all your email correspondence. For more information on how to write an effective and professional email, please see the following links:

<http://writingcenter.unc.edu/handouts/effective-e-mail-communication/>

<http://researchguides.library.yorku.ca/content.php?pid=476543&sid=3902786>

Meetings and Office Hours: Students are invited to attend office hours on a drop-in basis. No prior appointments are required for scheduled office hours. Students can also meet with the instructor outside office hours by requesting an appointment (i.e., send an email to the instructor). If you cannot attend a scheduled appointment, notify the instructor as soon as possible. If you schedule an appointment and do not show up, this may affect your ability to schedule future appointments.

Course Announcements: All general course emails and announcements from your instructor will be posted and sent in [Moodle](#). This correspondence will be sent to the email account you have specified in your [Moodle](#) profile. Note that some section-specific messages may be sent to your email account

within the Schulich mail system rather than through Moodle. ***It is your responsibility to ensure that you have access to both sources of information and check each regularly.***

Deliverables at a Glance

Course work includes participation activities and the following deliverables: four (4) assignments, two (2) projects, class participation and a final exam.

<i>Deliverable</i>	<i>Quantity</i>	<i>% Weight</i>	<i>Total %</i>	<i>Author</i>
<i>Assignments</i>	4	5	20	<i>Individual</i>
<i>Projects</i>	2	10	20	<i>Group</i>
<i>Final Exam</i>	1	45	45	<i>Individual</i>
<i>Class Participation</i>	1	15	15	<i>Individual</i>

Course Material

Text: Teaching materials and text will be customized from the books in reference list below. Printouts will be handout for each class.

Course website: An online learning platform ([Moodle](https://moodle.yorku.ca/)) will be created - <https://moodle.yorku.ca/>. It contains information and materials specific to this course, including lecture slides, practice problems and information regarding additional readings. Check it frequently! You will also access and submit homework assignments on Moodle. Because of the large volume of information available on Moodle, information will be grouped by topic (lectures, general information, practice materials, homework, etc.).

Reference

- [1] Narasimha Karumanchi. 2015. Data Structure and Algorithmic Thinking with Python. CareerMonk.
- [2] Ralph Kimball, Margy Ross. 2013. The Data Warehouse Toolkit. Wiley.
- [3] Krish Krishnan. 2013. Data Warehousing in the Age of Big Data. Morgan Kaufmann.
- [4] Benjamin Bengfort, Jenny Kim. 2016. Data Analytics with Hadoop: An Introduction for Data Scientist. O'Reilly.
- [5] Tom White. 2012. Hadoop: The Definitive Guide. O'Reilly.

Access to Moodle requires a Passport York login and password. If you do not have a Passport York account, you can find information on how to obtain one at

<http://computing.yorku.ca/students/home/passwords-passport-york-access/>

To log in to Moodle:

1. go to <https://moodle.yorku.ca/>
2. Locate the login box. Enter your Passport York Username and Password.
3. Once logged in, you will be taken to the My Courses page. In the middle of the screen you will see all of the courses that you are enrolled in that use Moodle. Select the course from the list of courses, and you will be taken to the course site.
4. Please make sure that your profile references your most frequently used email account.

Student Preparation for Class and Class Participation: Expectations

Participating honestly in this academic community ensures that the York University degree that you earn will continue to be valued and respected as a true signifier of your individual work and academic achievement. All suspected cases of academic dishonesty will be investigated. If you have any questions as to what is and is not permitted, do not hesitate to contact the course instructor or your academic advisors. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement (i.e., citations).
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts that are false (i.e., the claim is completely unsubstantiated).
- Obtaining or providing unauthorized assistance on any assignment (this includes collaborating with others on assignments that are supposed to be completed individually).

On test and exams:

- Using or possessing any unauthorized aids (e.g., cell phone, graphing calculators).
- Looking at someone else's answers at any time during the exam.
- Misrepresenting your identity or having another individual write your exam.
- Submitting an altered exam or assignment for re-grading.

Misrepresentation:

- Falsifying institutional documents, grades or university documentation (e.g., medical notes).

Late Assignments: Please note that all assignments are due at the date and time specified. ***The exact date and time will be given in the assignment and on Moodle.*** Late work will not be accepted. Exceptions will only be granted for medical and other serious emergencies. Please make every effort to let your instructor know in advance if your assignment is going to be late – use email. Supporting documentation will be required as per the [Schulich policy](#) on missed tests and assignments.

Group Work: Up to three students can work on an assignment. Although it is possible to complete the assignments by yourself, we highly recommend 2-3 students per group. Only one assignment should be submitted per group. Assignments will be submitted online via [Moodle](#). Groups can consist of students from other sections of the course. However, the assignment must be submitted at the earliest designated due date amongst all group members or else the submission will not be accepted. Learning to work together in teams is an important aspect of your education and preparation for your future careers. That said, project-based teamwork is often new to students and you are therefore reminded of the following expectations with respect to behavior and contributions to your team project.

When working in a team, Schulich students are expected to:

- Treat other members with courtesy and respect and honor the group ground rules.
- Contribute substantially and proportionally to each assignment.
- Ensure enough familiarity with the entire contents of the assignment so as to be able to sign off on it as original work and meet the assignment timeline as established by the team.

Resolving Group Conflicts: Conflicts are part of the team's process of learning how to work together effectively and when handled well, can generate creativity and bring-multiple perspectives to the solution. Student teams are collectively expected to work through their misunderstandings as soon as

they arise (and prior to submission of the final project). In cases where teams are unable to arrive at a solution that works for all members, the team must bring this to the attention of the instructor.

Class-by-Class Syllabus

Note: If any changes in this schedule become necessary, notifications will be posted on [Moodle](#). When changes need to be announced between classes, an email will be sent to students' email accounts, notifying them of the change. Check your email and the course website regularly. It is your responsibility to ensure that you to up-to-date.

DATE/WEEK	TOPICS/ASSIGNED READINGS/ASSIGNED WORK DUE
Week #1	<u>Data Structure I (with Python)</u> <ul style="list-style-type: none"> • Introduction: data analytics and big data • Data basics: Variables, Data Types, Operators • Data structure basics: Lists (set, array, string), Stacks, Queues
Week #2	<u>Data Structure II (with Python)</u> <ul style="list-style-type: none"> • Advanced Data structures: Trees, Dictionary, Graphs • Processing: IF-then, Loops, Recursions
Week #3	<u>Guest Lecture: Deep Learning Algorithms</u> <u>Algorithm Fundamentals</u> <ul style="list-style-type: none"> • Sorting, Searching, Divide and conquer, Hashing • Complexity analysis Deliverables: <ul style="list-style-type: none"> • Homework assignment 1 on data structure
Week #4	<u>Lab I: Python Programming for Data Analytics</u> <ul style="list-style-type: none"> • Python Programming • Case: Data preparations for <ul style="list-style-type: none"> ○ Financial fraud detection ○ Viral marketing campaign
Week #5	<u>Relational Database Fundamentals</u> <ul style="list-style-type: none"> • Entity Relational Model, Enhanced ER model • 3-schema • Logical Database Design Deliverables: <ul style="list-style-type: none"> • Group project 1 on data structure and algorithm design
Week #6	<u>Relational Database Management</u> <ul style="list-style-type: none"> • Data Integrity: integrities and normalizations • Data operating: SQL Language (DDL, DML, DCL) • Procedures
Week #7	<u>Lab II: Data Analytics with Relational Databases (with Python SQL)</u> <ul style="list-style-type: none"> • Logical Design

DATE/WEEK	TOPICS/ASSIGNED READINGS/ASSIGNED WORK DUE
	<ul style="list-style-type: none"> Implementation (Population and Normalizations) Reports view <p>Deliverables:</p> <ul style="list-style-type: none"> Homework assignment 2 on relational database
<i>Week #8</i>	<p><u>Data Warehousing Fundamental</u></p> <ul style="list-style-type: none"> Dimensional Model ETL <p>Deliverables:</p> <ul style="list-style-type: none"> Group project 2 on relational database design and implementation
<i>Week #9</i>	<p><u>Lab III: Data Warehousing (with Oracle Data Mart Suite)</u></p> <ul style="list-style-type: none"> Designer, Builder, Discoverer Case: Retail Case Study/Customer Relationship Management <p>Deliverables:</p> <ul style="list-style-type: none"> Homework assignment 3 on data warehousing
<i>Week #10</i>	<p><u>Guest Lecture: Smart Data Grid</u></p> <p><u>Distributed Database Fundamentals (with Hadoop)</u></p> <ul style="list-style-type: none"> Distributed data storage and Analysis (MapReduce, HDFS) Distributed data operations
<i>Week #11</i>	<p><u>Lab IV: Data Analytics (with Hadoop)</u></p> <ul style="list-style-type: none"> Hadoop Case: Financial Services <p>Deliverables:</p> <ul style="list-style-type: none"> Homework assignment 4 on distributed data storage and processing
<i>Week #12</i>	<p><u>Guest Lecture: Block chain</u></p> <p><u>Advanced Technique in Big Data</u></p> <ul style="list-style-type: none"> Introduction to advanced data techniques: Block chain etc. NoSQL DB for Python
FINAL EXAM – PLEASE REFER TO THE EXAM SCHEDULE (3 hours)	

Written Assignments/Projects and Exam[s]: Descriptions

Due Date

As per schedule (in class) Participation
 During the 12 regularly scheduled class sessions, you will have the

Due Date

opportunity to earn a total of 15% of your final course grade. How the credit is earned will vary from session to session – it could be granted for bringing to class some data or an example (as instructed in a previous session), for completing an in-class participatory exercise, or simply for attendance. Some activities will take place in groups, others may be individual. Unless special permission has been arranged with your instructor prior to class, you must attend your regularly scheduled section to earn credit.

Value: 15%

Assignment #1–Week #3

Assignments

Assignment #2–Week #7

Assignment #3–Week #9

Assignment #4–Week #11

You will prepare four assignments for the course (due in the week of lecture 3, 7, 9 and 11, respectively – worth 5% each). Working on an individual basis, you will complete and submit short exercises reinforcing concepts learned in class. Assignments, the due date and time, and detailed instructions regarding submission expectations, will be posted on [Moodle](#). All instructions for assignments are expected to be followed. Assignments are to be submitted online using your [Moodle](#) account before the designated due date. **NO LATE ASSIGNMENTS WILL BE ACCEPTED.**

Maximum Length:

Value: 4 x 5% = 20%

Week #5

Projects

Week #8

For the focal topics on data analytics, it is imperative to gain hands-on experience with project cases, where necessary skills in practices are nurtured. Students are expected to work in a group of 2-3. Instructions will be announced in class or posted on Moodle system. All instructions for group projects are expected to be followed. Deliverables are to be submitted online using your [Moodle](#) account or in class/lab sessions before the designated due date. **NO LATE ASSIGNMENTS WILL BE ACCEPTED.**

Value: 2 x 10% = 20%

Please refer to the exam schedule

Final Exam

Date, time and location of the final exam TBA. Please refer to the exam schedule.

Max length: 3 hours in duration

Value: 45%

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, sections of required core courses are normally expected to have a mean grade between 4.7 and 6.1.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consult your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Student Handbook and on the Student Services & International Relations Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services.

For counseling & disability services, contact Student Services or see <http://cds.info.yorku.ca/>.

Exams (Absence from)

Final. Within 24 hours of missing a final examination, students must contact the Director of Student Services at (416) 736-5060 and must also contact their course instructor. Formal, original documentation regarding the reason for missing the exam must be submitted to the Director of Student Services within 48 hours of missing the final exam. Students who miss a final exam due to illness must have their doctor complete an "Attending Physician's Statement." For a copy of this document, visit <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>.

MEMORANDUM

Peter F. Bronfman Business Library

TO: Associate Professor Murat Kristal, Finance Operations Management and Information Systems, Director of Master of Business Analytics (MBAN) Program, Schulich School of Business

SUBJECT: Library Statement for **MBAN 5330 3.00: Big Data Fundamentals and Applications**

FROM: Xuemei Li, Business Librarian, Bronfman Business Library

DATE: December 22, 2016

This proposed MBAN course establishes foundation for data science in the business domain. Through in-class lecturing and hands-on projects, students learn fundamentals of data, data management and data-centric programming. The classes cover up-to-date applications in data science, such as Python, SQL and Hadoop. The Libraries are able to support this course with a good collection including print and electronic books, print and electronic journals in subject areas relevant to this course.

Keyword searching of the York University Libraries' catalogue reveals relevant subject headings such as: Big data, Data warehousing, Business Intelligence, Data mining, Database management, Data structures, Relational databases, Python (computer program language), and SQL (computer program language). Relevant print books are located primarily at the Steacie Science and Engineering Library. The print academic book collection is supplemented nicely by a range of different practitioner e-book collections, e.g. *Springer Link* and *Scholars Portal Books* and more which are offered through e-book collections such as *Books 24x7* and *Safari Books Online*.

The books listed in this proposal which are not currently in our collections will be ordered and the books will be added to our collections before the course is delivered. The instructor is encouraged to use the Libraries' reserve service to ensure equitable student access to all the required reading books.

Minor Change to Program/Graduate Diploma Academic Requirements Proposal Form

The following information is required for all proposals involving a minor modification to program/graduate diploma academic requirements. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program/Graduate Diploma:

Diploma in Intermediate Accounting

2. Effective Session of Proposed Change(s):

Winter 2018

3. Proposed Change(s) and Rationale

The description of and rationale for the proposed modification(s) should provide information with respect to each of the following points:

a) A description of the proposed modification(s) and rationale, including alignment with academic plans.

The program proposes to reduce the number of required courses from 30 to 27 credits. The course to be dropped from the diploma is SB/ACTG 6720.

b) An outline of the changes to requirements and the associated learning outcomes/objectives, including how the proposed requirements will support the achievement of program/graduate diploma learning objectives. Additionally, please append the graduate program's existing learning outcomes as a separate document.

The learning outcomes will not be affected as the outcomes covered by this course are also covered by other courses (please see appendix).

c) An overview of the consultation undertaken with relevant academic units and an assessment of the impact of the modifications on other programs/graduate diplomas.

Where and as appropriate, the proposal must include statements from the relevant program/graduate diplomas confirming consultation/support.

This change occurs in coordination with the Diploma in Advanced Accounting and Master of Accounting. Consultations occurred within the Schulich accounting area, with the Schulich AD Academic and the Student Services unit. Approval of this change included approval by the Programs Coordinating Committee, which ensured coordination with and approval by other relevant Schulich program representatives.

d) A summary of any resource implications and how they are being addressed.

Attention should be paid to whether the proposed changes will be supported by a reallocation of existing resources or if new/additional resources are required. If new/additional resources are required, the proposal must include a statement from the relevant Dean(s)/Principal.

This course will still be offered, but not required anymore by the DIAC. As such, there are no resource implications.

e) A summary of how students currently enrolled in the program/graduate diploma will be accommodated.

Current students will still complete the current curriculum. Since the program is cohort-based, there will be no overlap between students in the current and future cohorts.

4. Calendar Copy

Using the following two-column format, provide a copy of the relevant program/graduate diploma requirements as they will appear in the FGS Calendar - <http://gradstudies.yorku.ca/current-students/regulations/program-requirements/>.

Please note: Senate requires that FULL Calendar copy be provided. Please include the entire graduate program/diploma section, not just text that is being revised.

Please clearly and visibly indicate how graduate program/graduate diploma information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Program/Graduate Diploma Information (change from)	Proposed Program/Graduate Diploma Information (change to)
<p>The Graduate Diploma in Intermediate Accounting develops students’ academic and intellectual abilities in the core competency areas that constitute the field of accountancy. This includes courses that are fundamental to accounting as well as basic and intermediate courses in accounting. The program is suitable for graduates of non-business programs and graduates of business programs not accredited by the CPA Ontario. The curriculum is academically rigorous and comprises 30 credits over two terms.</p> <p>After completing the program, graduates will have acquired in-depth learning of all of the field’s competency areas and expertise in basic and intermediate accounting, covering the Core 1 and Core 2 of the CPA qualification path. Graduates may proceed to complete their education necessary for professional</p>	<p>The Graduate Diploma in Intermediate Accounting develops students’ academic and intellectual abilities in the core competency areas that constitute the field of accountancy. This includes courses that are fundamental to accounting as well as basic and intermediate courses in accounting. The program is suitable for graduates of non-business programs and graduates of business programs not accredited by the CPA Ontario. The curriculum is academically rigorous and comprises 27 credits over two terms.</p> <p>After completing the program, graduates will have acquired in-depth learning of all of the field’s competency areas and expertise in basic and intermediate accounting, covering the Core 1 and Core 2 of the CPA qualification path. Graduates may proceed to complete their education necessary for professional</p>

certification through pursuing Schulich's Master of Accounting (advanced standing will be provided to successful graduates) or enter the CPA's professional certification stream.

Please visit <http://schulich.yorku.ca> for more information.

certification through pursuing Schulich's Master of Accounting (advanced standing will be provided to successful graduates) or enter the CPA's professional certification stream.

Please visit <http://schulich.yorku.ca> for more information.

Please submit completed forms and required supporting documentation by email to the Coordinator, Faculty Governance– mmschiff@yorku.ca

Learning Outcomes

			Term 0					Term 1						
	Expected Learning Outcomes	How are Learning Objectives Achieved?	MACC 5101	MACC 5211	ACTG 6120	ACTG 6250	FINE 5200	MGMT 6200	ACTG 6140	ACTG 6550	ACTG 6600	ACTG 6710	ACTG-6720	MACC 6201
Breadth and Depth of Knowledge	Have high levels of proficiency in all of the major practice areas of accountancy including: Performance Measurement and Financial Reporting; Audit and Assurance and Taxation	Students are required to take 30.0 credit hours of courses that cover these four broad areas of accountancy practice.	•	•	•	•	•	•	•	•	•	•	•	•
	Demonstrate a thorough knowledge and understanding of all of the standards that govern the production and audit of financial statements for public and private companies.	18 credits of the program are devoted to the production, consumption and audit of financial statements for public and private companies. Content goes from introduction to Intermediate level	•		•	•			•		•		-	•
Research and Scholarship	Can demonstrate their ability to conduct situation-based research using available financial and other information about business entities;	All required courses include an applied research component.	•	•	•	•	•	•	•	•	•	•	•	•
	Can generate well-structured and formatted reports on the basis of this research;	All courses have at least one group research project, and some assignments require individual student research where originality and creativity are emphasized.	•	•	•	•	•	•	•	•	•	•	•	•
	Can apply the results of academic research in accounting case situations;	Some courses, required readings include academic journal articles.					•		•	•			-	•
	Can demonstrate through relevant applications a general familiarity with the top scholarly outlets in the field.	Use of scholarly articles in classes and assignments.							•	•	•	•	•	•

Level of Application and Knowledge	Make sound decisions in complex situations by applying a mix of evidence, reason, and judgment while considering multiple perspectives	Through case based courses students learn to apply and integrate the knowledge from the various sub-fields of professional accountancy to complex business situations.	•	•	•					•					-	•
	Be able to apply their knowledge to novel applications and contexts including different organizations and industries	Cases develop students' proficiency in integrating and applying knowledge of these multiple fields to professional practice contexts.	•	•	•					•						-

	Expected Learning Outcomes	How are Learning Objectives Achieved?	MACC 5101	MACC 5211	ACTG 6120	ACTG 6250	FINE 5200	MGMT 6200	ACTG 6140	ACTG 6550	ACTG 6600	ACTG 6710	ACTG-6720	MACC 6201
Professional Capacity / Autonomy	Show the ability to respond effectively to the ethical dilemmas that accountants face;	In projects and assignments students are exposed to various scenarios in which the accountant is required to make informed decisions in complex decision environments	•	•	•	•			•	•	•	•	•	•
	Be able to apply ethical frameworks and professional standards to resolve them;	Ethical decision-making is a central theme of all of the program's case based courses.	•	•	•				•				-	•
	Demonstrate the ability to act with integrity, transparency and in the public interest.	Ethics and corporate governance themes are covered in all Financial Reporting, Management Accounting, Audit, and Taxation courses.	•	•	•	•			•	•	•	•	•	•
Level of Communication Skills	Be able to write concise, well-structured and well researched reports;	The majority of the program's courses require students to write reports and make individual or group presentations of their findings.	•	•	•	•	•	•	•	•	•		-	•
	Demonstrate the ability to present and communicate their ideas clearly and	Written reports are evaluated on content and clarity of exposition. In	•	•	•	•	•	•	•	•	•	•	•	•

	effectively;	the oral presentation of findings communication and presentation skills are honed.												
	Be able to make effective and professional presentations and produce professionally formatted presentation slides and reports.	Course work projects require students to make oral presentations of their findings in professionally developed formats	•	•	•	•			•	•	•	•	•	•
Awareness of Limits of Knowledge	Demonstrate an awareness of the limitations of financial data as a basis for decision making	Case based accounting courses illustrate the limits of accounting as a basis of decision making and will emphasize the need for multiple perspectives in decision making.	•	•	•	•			•	•			-	•
	In realistic scenarios, can demonstrate their ability to distinguish between and resolve problems that can be solved using available knowledge despite insoluble issues that need to be managed.	In all courses students are exposed to the multiple theoretical perspectives that underpin debates with accounting audit and related fields	•	•	•	•	•	•	•	•	•	•	•	•

New Course Proposal Template

The following information is required for all new course proposals. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program: Master of Management

2. Course Number: MSTM 6000

3. Credit Value: 3.0

4. Long Course Title: Enterprise Consulting Project

5. Short Course Title:

This is the title that will appear on University documents where space is limited, such as transcripts and lecture schedules. The short course title may be a maximum 40 characters, including punctuation and spaces.

Enterprise Consulting Project

6. Effective Session: Summer 2017

7. Calendar (Short) Course Description:

This is the description of the course as it will appear in the University course repository and related publications. Calendar (short) course descriptions should be written in the present tense and may be a maximum of 60 words. Please include information with respect to any pre-/co-requisites and/or crosslisting or integration in the course description. Please indicate if the language of instruction is other than English.

The Enterprise Consulting Project (ECP) combines academic learning with practical experience. The project will require students to apply classroom knowledge to real world management issues. During the ECP, students will use the management foundations studied in the first two terms of the Master of Management program to develop actionable recommendations for the client organization.

8. Expanded Course Description:

This is the detailed course description that will be published in course outlines, program handbooks, etc.

This course is designed to provide Master of Management students the opportunity to obtain firsthand experience inside a working organization, and to get a practitioner's perspective on the challenges growing organizations face. Projects vary widely in scope and nature of company/industry/topic, thus students must be willing and prepared to take on projects as assigned.

This course requires you to apply and integrate the management concepts you learned throughout the Master of Management program to the end of providing practical and actionable recommendations to your client. Activities you can expect include but are not limited to:

- Conducting primary research with customers and / or consumers on a challenge or opportunity that is currently facing an organization
- Conducting industry research to help the organization understand where it fits in its competitive landscape
- Working on a short term project that is of importance to the organization, strategically or operationally

- Learning how to manage a consultant / client relationship
- Creating high quality, succinct reports for your supervisor and client

Prerequisites: The course is restricted to students enrolled in the MGMT program.

HOW THE COURSE WORKS

There are a number of distinct steps that must be followed to set up and complete the project successfully. These steps and their timetable are outlined below and detailed in the balance of this course outline.

By February, students are required to submit a personal one-pager so that I can form the class into groups based on students' interests. Groups will be composed of either 4 or 5 students. If you have already formed a group, please have a group representative submit all 4 or 5 students' personal one-pagers to me in an email copying all group members.

Groups will be confirmed in March and assigned a company to work with. Schulich will deliver the company for study to your group.

The organization must be an on-going business, a start-up, a non-profit, or community organization. From May through July, each student group will engage in a collaborative work project that will be negotiated between the student group, the organization's management, and me, and formalized in a document called the "Statement of Work" (please see attached) by April.

Our 2nd class session will be held during the week of May 1 (exact date TBD) where the details of the program will be reviewed once again, groups will choose their milestone meeting dates, and I will answer any questions you might have.

In week 4, the students will meet with me for the project planning meeting. The objective of this meeting is to provide plan details and a detailed timetable for project completion for my input. The marking grid for the project planning meeting is attached. A sign up sheet for this meeting, plus the subsequent Status Update meeting (week 8) and Final meeting (week 12) will be circulated during our class on week of May 1 (exact date TBD).

In Week 8, the Status update meetings will be held with each group. The objective of this meeting is to provide a comprehensive update on where you are at vis-a-vis completing the project on time (at the end of week 12). The marking grid for the status update meeting is attached.

In order to have a successful status update meeting, the group will need to do a review of what was started at the beginning of the project, describe what has changed since the beginning of the project, and update me on the status of the group's research. The final piece of this phase of the project is a detailed timetable demonstrating convincingly how the project will be completed on time.

By the end of week 12, the students will present their final report in 20 minutes and be prepared to answer questions for up to another 40 minutes. Groups will also submit their final report, of no more than 40 pages, double-spaced, using 12 pt. type. The expectations for what is required in the final report are provided in a document that is attached. Importantly, there is no marking grid per se, as each organization will demand a different approach and therefore a different grading scheme.

9. Evaluation:

Please supply a detailed breakdown of course requirements, including the type and percentage value of each assignment. The expectation is that course assignments can normally be accomplished within the course period. If applicable, details regarding expectations and corresponding grading requirements with respect to attendance and participation should be provided.

Assignment	Deadline/Date	Quantity	% Weight	Total %	Author
Project Plan and Presentation	May 24-26	1	20%	20%	Team
Status Report and Presentation	June 21-23	1	20%	20%	Team
Final Report and Presentation	July 19-21	1	40%	40%	Team
Reflective Journal	July 24	1	20%	20%	Individual
				100%	

Please note that the focus on group work (80%) is meant to reflect the nature of how work is done in many firms wherein people regularly form teams to work on key issues. The best time to deal with discord within a group is when it appears, rather than when the final project is due. If team members experience disagreement that they cannot resolve themselves, they should speak with me about it.

To ensure that the team members each deliver on their commitments to the project, a formal peer evaluation process will be used throughout the projects and discussed at each of the three milestone meetings. A peer grade allocation process will be used to assess the contributions of individual members to the team. Criteria for the peer evaluation include attendance and participation at team meetings; preparation for meetings; cooperativeness in getting work done; time and effort put into the project; timeliness and quality of the work; use of interpersonal and group dynamic skills, and any other elements of teamwork.

Please take this very seriously, because I do. I will consider this input in assigning the final grade. The grade allocation form is attached and must be submitted, signed by all team members before the final presentation begins. If the document cannot be agreed on by all group members, the final meeting will be rescheduled at my convenience.

10. Integrated Courses:

Graduate courses may be integrated only with undergraduate courses at the 4000-level, where it is understood that 4000-level indicates an advanced level. Graduate students will be expected to do work at a higher level than undergraduates. If the proposed course is to be integrated, please provide a grading scheme that clearly differentiates between the work that undergraduate and graduate students perform, including a description of how the work performed by graduate students is at a higher level. As well, please indicate the course information for the undergraduate course (i.e., Faculty/unit/course number/credit value) and include a statement from the relevant undergraduate chair or undergraduate director indicating agreement to the integration.

There is no overlap with other courses.

11. Rationale:

Please indicate how the proposed course will contribute to the academic objectives of the program. Please provide a description of the learning outcomes/objects for the course. As well, please indicate the relationship of the proposed course to other existing options, particularly with respect to focus/content/approach. If overlap with other existing courses exists, please indicate the nature and extent of consultation that has taken place. Additionally, please append the graduate program's existing learning outcomes as a separate document.

Through the course, we expect that students will:

1. Learn to assess how the organization competes, or struggles to compete in its industry, to the end of developing and recommending ideas for improving an organization's competitive advantage.
2. Gain experience in scoping a real business problem facing an organization, and designing a research plan to address that problem.
3. Learn to implement a research plan and adapt it in real time as data collection and analysis reveal new insights, and feedback processes fine tune understandings.
4. Enhance students' ability to work with clients in a consulting relationship, scoping a problem, designing a research plan and delivering interim and final reports that meet client needs and ensure maximum buy-in.
5. Learn to produce a compelling final report that clearly addresses the scope of the client problem and effectively presents research and analysis to provide recommendations for the client's issue.

12. Faculty Resources:

Provide the names of faculty members in your program qualified to teach this course. Stipulate the frequency with which you expect this course to be offered, including the impact that this course will have on faculty resources.

This course will be offered in the summer term and Steve Pulver, Instructor of Marketing and Entrepreneurial Studies, will be teaching this course.

Steve Pulver has been an entrepreneur for more than 30 years. He has started, bought and sold a number of businesses, and he brings this practical experience, and his Schulich MBA to MSTM 6000 making the course relevant and meaningful to students. His experience is in the area of marketing and advertising consumer goods with Procter & Gamble, CBS Records, my own firm, Echo Advertising, and a number of other organizations including Mill Street Brewery. Of note, he funded his MBA by writing and performing stand-up comedy across North America. His perspective reflects these varied experiences.

The course is expected to have a negligible impact on faculty resources.

13. Cross-listed Courses:

Crosslisted courses are offered between two or more graduate programs. For crosslisted courses, please include a statement of agreement from the director of the other graduate program(s).

This course is not cross-listed.

14. Bibliography and Library Statement:

Please provide an appropriate and up-to-date bibliography in standard format. A statement from the University librarian responsible for the subject area certifying that adequate library resources are available for the new course must be provided.

15. Physical Resources:

Please provide a statement regarding the adequacy of physical resources (equipment, space, labs, etc.), including whether or not additional/other physical resources are required and how the need for these additional/other physical resources will be met.

No additional physical resources are needed to run this course.

New Course Proposal Template (Part B - Schulich Use Only)

16. Instructors and Faculty Coordinator

Initial instructor

<Indicate who will be the first instructor for this course.>

Steve Pulver, Instructor of Marketing and Entrepreneurial Studies, will be the first instructor teaching this course.

Alternative instructors

<Indicate other persons, especially full-time faculty members, who have the ability and interest to teach this course in the future.>

Steve Pulver has agreed to steer this course for the foreseeable future. If he were to step aside for some reason we would likely approach others who chair or supervise 601 projects in the MBA program.

Course coordinator

<Indicate the full-time faculty member who will coordinate this course, in the event it is taught by a part-time instructor or is offered in multiple sections.>

Professor Kevin Tasa, Director of Master of Management program, will coordinate this course.

17. Specializations

Primary area or specialization

<Indicate the primary area or specialization where the proposed course will be listed in the program handbook.>

This course will be listed under Academic Degree Programs in the MBA Program Handbook.

Secondary areas or specializations

<List all other areas or specializations where the proposed course will be listed as an elective.>

N/A

18. Student Contact and Enrolment

Contact hours

<State the number of classroom hours of this course per term. If there is a lab requirement, also state the number of lab hours per term.>

Students meet as a full class 4 times, and in smaller groups with the instructor at least 3 times throughout the project.

Maximum enrolment

<For core courses, 55. For electives, 45. Any other maximum requires approval from the Associate Dean Academic and explicit endorsement from the Program Committee and Faculty Council.>

There is no maximum size for this course because it is required of all MMgt students.

Expected enrolment

<State the expected "steady-state" enrolment. It is understood that new courses may take one or two terms to reach this level.>

All MMgt students must enrol in this course.

Evidence for enrolment expectations

<Provide evidence or a rational argument for your enrolment expectations.>

Not applicable.

19. Human Participants Research

<If any assignment for this course involves Human Participants Research, the course outline should make reference to the Human Participants Research procedures and approval process. Otherwise indicate "N/A".>

N/A

20. Conditions for Approval

If this proposal is for a new elective course, please indicate which one of the following conditions required by Faculty Council applies:

- a) **The Area is deleting courses with at least the same total number of credits.**
<Specify the course or courses being deleted.>
- b) **Provide a convincing case for the proposed course.**
<State the reason the program needs this new course and provide evidence that the Area has no elective with student enrolments low enough to warrant deletion.>

N/A

Course Originator

Kevin Tasa
Signature

March 16, 2017
Date

Kevin Tasa
Name

Supporting Faculty Members

The course originator should consult with other interested parties and obtain their support. Support should be obtained from other units of the university if their interests are related to this course.

The faculty members whose names appear below confirm that they have examined this course proposal. They feel it is a worthwhile addition to the SSB curriculum and does not, to their knowledge, significantly duplicate the content of existing courses.

Ashwin Joshi

Marketing Area

Chris Bell

Organization Studies Area

James Mackay

Strategic Management Area

Mary Waller

Schulich Centre for Excellence

Mike Valente

Organization Studies Area

Rekha Karambayya

Organization Studies Area

Approvals:

Area or Specialization

I have reviewed this course proposal with the faculty members of this Area or Specialization, and I support the addition of the course to the SSB curriculum.

Markus Giesler
Signature

March 16, 2017
Date

Markus Giesler
Name of Coordinator or Director

Marketing
Area or Specialization

Degree Program

I support the addition of the course to the SSB curriculum.

Kevin Tasa
Signature

March 16, 2017
Date

Kevin Tasa
Degree Program Director

MBA Program
MBA Program

Program Committee

This course proposal has received the approval of the relevant Program Committee and documentation attesting to the faculty member support for the course has been received and archived by the committee chair.

Markus Biehl
Signature

March 23, 2017
Date

Markus Biehl
Name of Committee Chair

MPC-PCC Committee
Committee

Required Attachments

- A motion to Faculty Council that includes the rationale for the course.
- Schulich course outline: must conform to program norms; see the Program Assistant for details.
- Librarian's statement indicating that adequate library resources are available for the course
- For cross-listed courses: signed statement of agreement from director of other graduate course
- For integrated courses: signed statement of agreement from chair of undergraduate program
- If applicable, a completed Human Participants Research Protocol Form.

Send to

Send an electronic copy of all forms and attachments, and forward emails of support from other faculty members, to the appropriate program committee secretary.

Course Title: Master of Management Applied Field Study

Summer 2017

Instructor

Steve Pulver
Office: SSB N305P
Phone:(416) 540 9167 (cell)
(416) 487 6346 (home)
e-mail: spulver@schulich.yorku.ca

Assistant

TBD @schulich.yorku.ca

Course Leadership

I have been an entrepreneur for more than 30 years. I have started, bought and sold a number of businesses, and I bring this practical experience, and my Schulich MBA to MSTM 6000 making the course relevant and meaningful to students. My experience is in the area of marketing and advertising consumer goods with Procter & Gamble, CBS Records, my own firm, Echo Advertising, and a number of other organizations including Mill Street Brewery. Of note, I funded my MBA by writing and performing stand-up comedy across North America. My perspective reflects these varied experiences.

All communication or questions with respect to the course should be addressed to me (spulver@schulich.yorku.ca).

Course Description

The Enterprise Consulting Project (ECP) combines academic learning with practical experience. The project will require students to apply classroom knowledge to real world management issues. During the ECP, students will use the management foundations studied in the first two terms of the Master of Management program to develop actionable recommendations for the client organization.

Expanded Course Description

This course is designed to provide Master of Management students the opportunity to obtain firsthand experience inside a working organization, and to get a practitioner's perspective on the challenges growing organizations face. Projects vary widely in scope and nature of company/industry/topic, thus students must be willing and prepared to take on projects as assigned.

This course requires you to apply and integrate the management concepts you learned throughout the Master of Management program to the end of providing practical and actionable recommendations to your client. Activities you can expect include but are not limited to:

- Conducting primary research with customers and / or consumers on a challenge or opportunity that is currently facing an organization
- Conducting industry research to help the organization understand where it fits in its competitive landscape
- Working on a short term project that is of importance to the organization, strategically or operationally
- Learning how to manage a consultant / client relationship
- Creating high quality, succinct reports for your supervisor and client

Prerequisites: The course is restricted to students enrolled in the MGMT program.

HOW THE COURSE WORKS

There are a number of distinct steps that must be followed to set up groups and sites, and complete the project successfully. These steps and their timetable are outlined below and detailed in the balance of this course outline. We will break them up into classroom sessions for all and individual group meetings with me.

Group Formation and Site Selection

By February 10, 2017, students are required to submit a personal one-pager to me (please see this document attached) so that I can form the class into groups based on students' interests. Groups will be composed of either 4 or 5 students. If you have already formed a group, please have a group representative submit all 4 or 5 students' personal one-pagers to me in an email copying all group members by February 10, 2017.

Groups will be confirmed by March 3, 2017 and assigned a company to work with by March 24, 2017. Schulich will deliver the company for study to your group. However, if you have found a company that you would like to study, please submit that company's name and a company contact to me for approval by March 10.

The organization must be an on-going business, a start-up, a non-profit, or community organization. From May through July, each student group will engage in a collaborative work project that will be negotiated between the student group, the organization's management, and me, and formalized in a document called the "Statement of Work" (please see attached) by April 21.

Classroom Sessions

Our 2nd class session will be held during the week of May 1 (exact date TBD) where the details of the program will be reviewed once again, groups will choose their milestone meeting dates, and I will answer any questions you might have.

We will have a 3rd class session during the week of May 8 which will focus on the topic of client service. This will be conducted by me, or by a guest speaker, and we will discuss some key issues of importance when talking to clients. Client relations will be highlighted and students will role play different client communication scenarios.

The 4th formal session will occur during week 5, when we will meet as a class. The objective of this meeting is for us to understand how each group is progressing, what challenges they are facing, and how they plan to address them to complete their project successfully. Each 4 or 5 person group will be asked to present 3 slides covering the above items

The 5th and final session will occur after final presentations have been made. The objective of this session is to recap the learning each group got from the project and identify things they might have done differently, or would do differently in the future based on what they have learned. Again, each 4 or 5 person group will be asked to present 3 slides covering the above items.

Meetings with Steve and Groups

In week 4, on May 24, 25 or 26, the students will meet with me to present their project plan. The objective of this meeting is to provide plan details and a detailed timetable for project completion for my input. The marking grid for the project planning meeting is attached. A sign up sheet for this meeting, plus the subsequent Status Update meeting (week 8) and Final meeting (week 12) will be circulated during our class on week of May 1 (exact date TBD).

In Week 8, on June 21, 22, or 23, student groups present their Project Status Update. The objective of this meeting is to provide a comprehensive update on where you are at vis-a-vis completing the project on time (at the end of week 12). The marking grid for the status update meeting is attached.

In order to have a successful status update meeting, the group will need to do a review of what was started at the beginning of the project, describe what has changed since the beginning of the project, and update me on the status of the group's research. The final piece of this phase of the project is a detailed timetable demonstrating convincingly how the project will be completed on time.

By the end of week 12, on July 19, 20, or 21, the students will present their final report in 20 minutes and be prepared to answer questions for up to another 40 minutes. Groups will also submit their final report, of no more than 40 pages, double-spaced, using 12 pt. type. The expectations for what is required in the final report are provided in a document that is attached. Importantly, there is no marking grid per se, as each organization will demand a different approach and therefore a different grading scheme.

Contents

Course Learning Outcomes.....	4
Evaluation	3
Course Material.....	4
Expectations of Students in the Course	4
Class-by-Class Syllabus	4
Assignments.....	6
Evaluation of Assignments.....	8
Calculation of Course Grade	8
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	8
Quick Reference: Summary of Activities and Deliverables.....	9

Course Learning Outcomes

Through the course, we expect that students will:

1. Learn to assess how the organization competes, or struggles to compete in its industry, to the end of developing and recommending ideas for improving an organization's competitive advantage.
2. Gain experience in scoping a real business problem facing an organization, and designing a research plan to address that problem.
3. Learn to implement a research plan and adapt it in real time as data collection and analysis reveal new insights, and feedback processes fine tune understandings.
4. Enhance students' ability to work with clients in a consulting relationship, scoping a problem, designing a research plan and delivering interim and final reports that meet client needs and ensure maximum buy-in.
5. Learn to produce a compelling final report that clearly addresses the scope of the client problem and effectively presents research and analysis to provide recommendations for the client's issue.

Evaluation

In the table below, the impact of each task on your final grade for the course is indicated in the “% weight” column. Details shown below.

Assignment	Deadline/Date	Quantity	% Weight	Total %	Author
Project Plan and Presentation	May 24-26 2017	1	20%	20%	Team
Status Report and Presentation	June 21-23 2017	1	20%	20%	Team
Final Report and Presentation	July 19-21 2017	1	40%	40%	Team
Reflective Journal	July 24 2017	1	20%	20%	Individual
				100%	

Please note that the focus on group work (80%) is meant to reflect the nature of how work is done in many firms wherein people regularly form teams to work on key issues. As you probably recall from the Team Dynamics course in term 1, the best time to deal with discord within a group is when it appears, rather than when the final project is due. If team members experience disagreement that they cannot resolve themselves, they should speak with me about it.

To ensure that the team members each deliver on their commitments to the project, a formal peer evaluation process will be used throughout the projects and discussed at each of the three milestone meetings. A peer grade allocation process will be used to assess the contributions of individual members to the team. Criteria for the peer evaluation include attendance and participation at team meetings; preparation for meetings; cooperativeness in getting work done; time and effort put into the project; timeliness and quality of the work; use of interpersonal and group dynamic skills, and any other elements of teamwork.

Please take this very seriously, because I do. I will consider this input in assigning the final grade. The grade allocation form is attached and must be submitted, signed by all team members before the final presentation begins. If the document cannot be agreed on by all group members, the final meeting will be rescheduled at my convenience.

Course Material

Required Readings:

There are no pre-assigned required readings for this course. However, if handouts are distributed prior to or during the formal class meetings it is expected that they be read. If any handouts are copyrighted, the cost for these materials will be absorbed by the program.

Course Materials Database (CMD):

A Course Materials Database ('CMD') has been created for this course within Lotus Notes. Every CMD includes some important general information for Schulich students. I post rubrics, resources and special instructions on assignments on the CMD. Please get into the habit of checking the CMD on a regular basis. Feel free to e-mail me with questions or concerns throughout the term.

Expectations of Students in the Course

Classes: This course has 5 formal classroom sessions, 1 during the winter term where I will introduce you to the course and take you through the deliverables and timetable for completion.

The 2nd formal session will be during the week of May 1 ***exact date and time TBD*** where everything will be gone over in detail to prepare for the upcoming term. In this session, we will discuss the assignments, the scoping process, the research process, and the importance of confidentiality. Course procedures and grading guidelines will also be discussed. You will also choose the specific dates and times for your milestone meetings with me. This class is mandatory for all students in the course.

We will have a 3rd class session during the week of May 8 which will focus on the topic of client service. This will be conducted by me, or by a guest speaker, and we will discuss some key issues of importance when talking to clients. Client relations will be highlighted and students will role play different client communication scenarios.

The 4th formal session will occur during week 5, when we will meet as a class. The objective of this meeting is for us to understand how each group is progressing, what challenges they are facing, and how they plan to address them to complete their project successfully. Each 4 or 5 person group will be asked to present 3 slides covering the above items

The 5th and final session will occur after final presentations have been made. The objective of this session is to recap the learning each group got from the project and identify things they might have done differently, or would do differently in the future based on what they have learned. Again, each 4 or 5 person group will be asked to present 3 slides covering the above items.

Initiative and Communication: Because this course has few scheduled classes, it is critical that each team manages their workload and takes initiative to develop and complete the project plan. Providing a good solid project report to the client not only increases your learning and career prospects, but also increases Schulich's reputation among the employer community. While there are only three formal assessment points for your progress, you are encouraged to make an appointment with me if you are facing any challenges with data collection, your client, your analysis or the working relationships within your group.

Assessment Presentations. You will be asked to present your Project Plan, Status Report and Final Report to me as a team on one of the due dates you choose in the 2nd classroom session. Additionally, you are required to present the final report to your client. Different team members must participate in each presentation.

Note: If any changes in this schedule become necessary, notifications will be posted on the course CMD, and when changes need to be announced between classes, an email will be sent to students' Lotus Notes email accounts, notifying them of the change.

Week to Week Course Schedule

Winter 2017

Activity	Date
Submit personal 1 pager Formal Classroom Session 1 Feb 10, 2017	Feb 10, 2017
Groups Confirmed	Mar 3, 2017
Submit your company for study (If applicable)	Mar 10, 2017
Instructor provided companies assigned	Mar 24, 2017

Summer 2017

Formal Classroom Session 2	Week of May 1
Formal Classroom Session 3	Week of May 8
Project Planning Meeting	May 24-26 2017
Formal Classroom Session 4	Week of May 29
Status Report Meeting	June 21-23 2017
Final Report Meeting	July 19-21 2017
Reflective Journal due	July 24 2017
Formal Classroom session 5	July 24, 2017

Assignments

Performance in this course will be evaluated based on four assignments: the Project Plan, the Status Report, Final Report and the Reflective Journal. A more detailed description of the assignments follows. Rubrics for the written assignments will be posted on the course website.

Submission Instructions: For the written assignments, please complete all written reports in no less than 12-point font. Please submit hard copies of your project plan status report and final documents to me at the presentation meetings.

Please submit your documents in this format: [XYZ Inc.PP] for the project plan, and similarly for the Status report (XYZ Inc.SR) and Final report (XYZ Inc.FR). Please also make sure you include your names and student numbers on the front of the document itself. **All late submissions will lose ½ of a letter grade per day. Assignments that are more than one week overdue will not be accepted, and will be assigned a grade of zero.**

The **Project Plan** will be a preliminary assessment of the company's competitive position in its industry, and a project plan for addressing the specific issue or issues the company faces, delivered to your academic project supervisor as a presentation with an accompanying report. This will be worth 20% of the course grade, and it will be due on either **May 24, 25, or 26**. You will also have to show evidence that the company has signed off on your project plan.

The **Status Report**. Over the following 4 weeks, students will conduct primary research with key customers and suppliers or others whose input is essential to addressing the project, and secondary research on selected competitors. The purpose will be to verify the company's competitive position and collect the data to address the company's project issue. On either **June 21, 22 or 23**, the students will make a formal presentation of the second draft of their assessment of the company's competitive position, and a status report on the project plan, including findings to date, and work remaining. This will be worth 20% of the course grade, and should be delivered as a presentation, with an accompanying written report of no more than 10 single-spaced pages, plus appendices.

The **Final Report**. In the final month of the term, students will complete any remaining research and write up the results of their study, incorporating all feedback they have received. They will make recommendations to address the company's issue for this project, as well as for any ways of enhancing the company's competitive position. This will be worth 40% of the course grade, and it will be due on **Either July 19, 20 or 21** delivered as a written report of no more than 20 single-spaced pages, plus appendices. Importantly, teams must present this report to me in a 20 minute presentation, and also must show verification that they have presented the report to the company.

The **Reflective Journal**. To consolidate learning and ensure you have gained the best from your practicum experience, you must reflect on the process and what you have learned. You are encouraged to reflect thoughtfully upon and respond to the specific organizational environment, professional responsibilities, and your own role in furthering the organization through the project. Consider the best and worst parts of the project, why you liked/not liked certain activities and duties, and what you learned from the activities.

The Reflective Journal should be based on the entire project experience and should incorporate the following points of discussion, as relevant:

- a) The expected learning outcomes you had of the project and whether those expectations have been met or changed as a result of the actual experience.
- b) The most important skills you developed and the most critical knowledge you gained during your project experience.
- c) The ways in which you applied or challenged your management theory and concepts with the project.
- d) The functioning (or non-functioning) of the team. How did you deal with differences in opinion? How did you manage your meetings? What worked well and what did not? What are your key take-aways for future teamwork?
- e) Your own objective assessment of your work, performance, and contributions to the project. In what areas did you excel? In what areas did you struggle? Did anything you learned about yourself surprise you?
- f) A conflict or disappointment you experienced through your project and how you managed it?
- g) What did you learn from the project experience that will change the way you approach your next work or project assignment?
- h) The Thesis Statement which identifies whether your expectations were met and what you learned. The body of your paper identifies two or three (depending on the length of your paper) major points that support your thesis statement.

This reflective journal will be worth 20% of the course grade, and it will be due on **July 24**, as a written document of no more than 2000 words.

Evaluation of Assignments

Rubrics for each assignment are attached and will be posted on the CMD by May 1, 2017

Calculation of Course Grade

In this class, final course grades will be determined by the following process: Each assignment will receive a grade. These will be combined according to the weightings assigned to each assignment to give a final grade. Grades may be rounded up or down depending on the final class distribution.

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, elective courses are expected to have a mean grade between 5.2 and 6.2.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consults your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services. For counseling & disability services, contact Student Services or see <http://www.yorku.ca/cds/>.

APPENDIX 1

MSTM 6000 Statement of Work

- **Project objective(s):** Why are we doing this project? What are we trying to achieve?
- **Scope of Work:** This describes the work to be done.
- **Location of Work:** This describes where the work is to be performed.
- **Deliverables Schedule:** This part details what is due and when.
- **Applicable Standards:** This describes standards that need to be adhered to in fulfilling the contract. In the case of our project, it will be the grading templates provided as well as any specifics the client provides
- **Special Requirements:** This specifies any special requirements, not covered in the specifics above.

APPENDIX 2

MSTM 6000

Reflective Journal Grading Template

To consolidate learning and ensure you have gained the best from your practicum experience, you must reflect on the process and what you have learned. You are encouraged to reflect thoughtfully upon and respond to the specific organizational environment, professional responsibilities, and your own role in furthering the organization through the project. Consider the best and worst parts of the project, why you liked/not liked certain activities and duties, and what you learned from the activities.

The Reflective Journal should be based on the entire project experience and should incorporate the following points of discussion. This is worth 20% of your final mark.

- a) The Thesis Statement, which identifies whether your expectations were met and what you learned. The body of your paper identifies two or three (depending on the length of your paper) major points that support your thesis statement.
- b) The expected learning outcomes you had of the project and whether those expectations have been met or changed as a result of the actual experience.
- c) The most important skills you developed and the most critical knowledge you gained during your project experience.
- d) The ways in which you applied or challenged your academic learning experience with the project.
- e) The functioning (or non-functioning) of the team. How did you deal with differences in opinion? How did you manage your meetings? What worked well and what did not? What are your key take-aways for future team work?
- f) Your own objective assessment of your work, performance, and contributions to the project. In what areas did you excel? In what areas did you struggle? Did anything you learned about yourself surprise you?
- g) A conflict or disappointment you experienced through your project and how you managed it?
- h) What did you learn from the project experience that will change the way you approach your next work or project assignment?

Total _____/20

APPENDIX 3

MSTM 6000 Grade Allocation Form
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Please use this form to allocate the grades for each of the individual members of your team. The grade allocation is a team decision. That means you – the team – need to decide how to make this important decision. Common options are decision by consensus, where all members need to back the decision; and decision by majority, where the decision is made by vote. Other alternatives are possible, and it is up to the team to decide how to manage this process.

Your team contract should function as the basis for the grade allocation. Have team members exceeded or fallen short of the expectations stated in the team contract? If they exceeded the expectations, is a higher grade warranted? If they have fallen short, is lowering the grade reasonable?

Your decision should be based on contributions to content and task accomplishment as well as contributions to process and leadership. The former may include regular attendance at team meetings; initiative in getting tasks done; reliability and quality of the work conducted; and the sharing of ideas and feedback. The latter may include keeping the team focused on priorities; supporting and encouraging other team members; displaying effective active listening and conflict managing skills; and demonstrating effective leadership.

This evaluation process is based on a zero-sum distribution. That means that you can only add (or deduct) marks to a member of your group if you deduct (or add) marks from another. You can reward contributions that exceeded expectations by assigning positive marks (i.e., +0.5, +1.0, +1.5 etc) to one or multiple members of your team. Contributions that fell short of expectations may be evaluated by assigning negative marks (i.e., -0.5, -1.0, -1.5 etc) to one or multiple members of your team. At the end, the sum of the grade allocations needs to be “0”.

For example, if the team believes that all members contributed to the project everyone will receive a “0”, meaning that no one deserves a higher or lower grade than the team overall. If you believe that one member’s contributions were higher than those of the average member you may decide to assign a positive mark to that member (e.g., “+2”) and deduct marks from one or multiple other members whose contributions were below average (e.g., “-1” for one member and “-0.5” for two others). Ultimately, positive and negative marks have to balance each other out to arrive at a total score of “0” for the team.

Ideally, of course, the team functioned well and all members contributed satisfactorily to the project. In that case, no adjustment would be necessary and all team members would receive a “0”. Hence, all members would receive the team grade assigned for the project.

The team will submit one completed Peer Evaluation Form to the course instructor via email. All team members should be copied on the email.

Project Name: _____

Group Member	Grade Allocation (..., +2, +1.5, +1, +0.5, 0, -0.5, -1.0, -1.5, -2.0, ...)

SUBJECT: Library Statement for MSTM 6000:
Enterprise Consulting Project

FROM: Stephanie Quail
Business Librarian

DATE: March 14, 2017

MSTM 6000: Enterprise Consulting Project

York University Libraries (YUL) will be able to support the proposed course, MSTM 6000: Enterprise Consulting Project. YUL has a strong collection of specialized business research databases, periodicals, and books that will help students conduct the secondary research required for the various assignments in this course.

While there are no required readings listed for this course, the professor can place materials on course reserve by submitting course reserve requests to YUL's online course reserve system: <http://reserves.library.yorku.ca/>

The course proposal lists a series of research-intensive assignments the students will have to complete. YUL's collection is well equipped to support students, as the Peter F. Bronfman Business Library's collection contains specialized business research databases and article databases. For example, the Library has key industry research databases such as *IBISworld* (covers niche industries), *Marketline Advantage*, *BMI Research*, and *Thomson One Investext*. Additionally, the Library provides students with access to key industry/market research databases such as *Passport*. Finally, the collection includes company research databases such as *Mergent Online*, *Hoovers*, and *Bloomberg*. Students will be able to learn about key resources by using the Bronfman Library's well-developed Industry Research Guide, Company Research Guide, and Market Research Guide. The Library also produces additional guides on topics like Finance Research, Health Care Management, and Mining Management. All of the Business Library's guides can be accessed from this page: <http://www.library.yorku.ca/web/bbl/guides/>

The Bronfman Business Library is also developing a suite of online learning resources for business students called BRYT (Business Research at York Toolkit): <http://bryt.library.yorku.ca/> This toolkit includes videos and PDF resources that show students how to use specialized business research databases to conduct business research. By May 2018, all five modules will be fully developed and will cover how to find and locate company, industry, marketing, finance, and accounting/taxation research.

In addition to the above materials, YUL also subscribes to various databases that have strong coverage of Canadian and international academic, trade, and popular business periodical titles and will provide students with 24/7 access to articles both on and off-campus. *Proquest Business* and *Business Source Complete* will be particularly useful, as they cover an excellent selection of major scholarly and trade business publications.

Students will also have 24/7 on and off-campus access to current and historical major Canadian newspapers through databases such as *Canadian Newsstand Major Dailies*, *CBCA Current Events*, and *Proquest Historical Newspapers*. International newspaper and media coverage is available through databases such as *Factiva* and *Lexis Nexis Academic*.

Finally, the Bronfman Library supports a similar course for the MBA program at Schulich (MGMT 6090 and MGMT 6100 – Strategy Field Study). The Library has created workshops to help students with the secondary research phase for this project. Students in this course may also benefit from a similar workshop series. It is suggested that the professor consult with the business librarians at Bronfman to see if there is scope for similar workshops to be developed for the Master of Management students. The content for the workshop can be viewed on this webpage:
<http://www.library.yorku.ca/web/bbl/assignments/601-workshops/>

Guidelines for Reporting Major vs. Minor Course Changes

To ensure the quality and consistency of Schulich's course and program offerings, changes to the curriculum follow a formalized and coordinated process. Protocol for the reporting of course-level changes is sometimes unclear, however, given the differing requirements for what needs to be approved by or reported to the faculty and other parts of the university. The following guidelines are in place in order to provide clarity of process and to ensure that as changes are introduced within individual courses, the curriculum's overall coordination, coherence, and comprehensiveness are maintained.

Course changes can be divided into two categories: major and minor. For changes to course elements other than those listed, consider whether the change will impact the course learning objectives/outcomes (what students know and can do upon completion of the course). As a general guideline, if the change impacts the course objectives/outcomes, it should receive approval prior to implementation.

Minor Course Changes:

- Minor course changes can be **implemented without formal approval** by a program committee or Faculty Council.
- Consultation with the course director should occur if the course has more than one section.
- Changes to the following course elements are considered minor:
 - materials (readings, media, etc.)
 - activities (sequence of content delivery)
 - structure and requirements of deliverables / graded components
 - some content (provided that the learning objectives/outcomes are not affected)

Major Course Changes:

- Changes to the course elements below are considered major and **require the approval of the relevant program committee and Faculty Councils** (Schulich and, for graduate courses, Faculty of Graduate Studies). While some of the elements listed may appear to be minor or inconsequential in nature (e.g., title, number, description), the formal approval and reporting requirements ensure that the university's repository of course information (which form the basis of the course calendar, student transcripts, etc.) aligns with current offerings.
 - Any fields captured in the University's course repository:
 - Course number
 - Credit value
 - Course Title
 - Description
 - Pre- / co-requisites
 - Integration and crosslisting
 - Course expiry/retirement
 - Any changes that affect program outcomes
 - Positioning of the course within the curriculum (core courses and electives that serve as prerequisites to other electives)
 - Learning objectives/outcomes
 - Content (if the degree of change would alter the learning objectives/outcomes)
 - Deliverables / graded components to the extent that they either relate to program-level learning outcomes or do not conform with program / faculty guidelines (e.g., participation > 20%, group work > 40%, etc.; for details, please see the course proposal package on the ADA website)

- Teaching format (e.g., introduction of more than 30% online content or a major experiential component)
- Enrolment cap (needs to be pre-approved by the AD Academic and be endorsed by the appropriate faculty members and the program committee / Faculty Council)

Major Changes to Multiple Course Elements:

When multiple elements of a course are to be changed, resulting in a **significantly new version of the course**, it may be appropriate to retire the existing version and submit a new course proposal in its stead. In such cases, it is recommended to consult with the ADA office on how to best proceed.

Note: Details on major vs. minor program-level changes can be found at the following link:
http://yuqap.info.yorku.ca/files/2012/05/modification_protocol.pdf

Grading

Policies & Guidelines

Grades provide students with important feedback on their understanding of the course material and mastery of learning outcomes, and where they need to improve. Grading also provides instructors with feedback that can be used to make subsequent decisions about teaching, either within the semester, or for following iterations of the course. It can therefore be helpful to consider grading as part of the larger process of learning and assessment, rather than as a matter of determining a student's standing in class.

Effective grading involves a sequence of activities, including:

- establishing clear expectations through grading policies
- designing assessments that measure the achievement of learning objectives / outcomes
- establishing benchmarks and criteria for marking that reflect the student's mastery of the learning outcomes
- calibrating for consistency, fairness and adherence to relevant policies, and
- providing useful feedback that helps students understand what they know or can do, and how they can improve.

Grading is a natural source of stress for both students and instructors. The policies and guidelines below are in place to help ensure that the grading practices at Schulich are accurate and transparent and that student performance is fairly assessed regardless of the course, section or instructor. They are also designed on the premise that effective grading functions as a tool for learning and encourage a focus on the learning process rather than on getting the right grade, thus reducing the likelihood of student complaints.

Grading and Formative Feedback

Grading Guidelines

1. **Class participation** should not account for more than 20% of the final grade. Exceptions to this guideline should be supported by a clear rationale.
2. **Due dates** for assignments should generally not fall within the set final examination period.
3. When presenting an assignment and returning marked work of qualitative nature, it is recommended that students receive with a **copy of the grading standards** or marking rubric to avoid the perception of unfair grading practices and ensure transparency with regards to how marks are assigned. Rubrics explicitly state grading criteria and link grades to the learning goals of an assignment and course.
4. Instructors are encouraged to provide **regular opportunities for formative feedback** throughout their course. Formative feedback helps students identify their strengths and target areas to focus on while there is still time remaining in the course for improvement. Providing shorter but more regular feedback creates a continuous dialogue between students and instructors that manages students' expectations and develops their reflective skills.

5. If marks are allocated for **participation**, instructors should be transparent about how these marks will be determined. The inclusion of mark descriptors in the course outline (that indicate what students need to do to earn a particular participation mark) will clearly convey an instructor's expectations right from the start of the course. It is also recommended that instructors provide students with ongoing feedback regarding their participation. Mid-term check-ins, for example, will ensure students are not surprised by their result at the end of the course.

Grading Policies

1. The components of the Schulich **course outline** template should be included in all course outlines. In addition to the items included in this template, course outlines should include the following information:
 - the instructor's percentage to letter grade translation scale
 - a statement as to whether grades will be curved and / or rounded in some way
 - a description of the components (attendance, quality and quantity of contributions, etc.) upon which the participation mark will be based and how these components will be weighted.
2. The **course outline** should be made available one month prior to the start of the course.
3. With the exception of courses explicitly required for certification by a professional body, or other exceptions agreed to by Senate, students pass or fail a course on the basis of their final course average, **without the additional requirement of having to obtain a passing grade on a final examination**. This policy does not exclude the possibility of a final examination representing more than 50% of the final grade in a particular course or the requirement that a student pass a specific course lab component.
4. Students should receive **graded feedback** worth at least 15% of the final grade for 3.00 credit courses **prior to the withdrawal date** from a course without academic penalty. (This policy does not apply to 1.50 credit courses, courses on a compressed schedule, practicum courses, or courses where the coursework typically consists of a single deliverable.)
5. No **examinations or tests** (in-class or take-home) collectively worth more than 20% of the course grade are permitted during the **final 14 calendar days of classes** in any Schulich course. (Excepted are courses that run on weekends, courses in compressed terms, and courses with 6.0 or more contact hours per week.) An assignment is not considered a take-home examination if students have at least two weeks to complete it.
6. Instructors must keep **class-by-class records** of students' contributions towards their participation mark that can be audited if needed. It is strongly recommended that records of contributions be completed right after each class.
7. All **class records**, including records of class participation, should be retained for a period of twelve months and destroyed thereafter.
8. The way in which course grades will be calculated should be clear to students from the start of the term.

- As Schulich does not use a standardized percentage grading scale, percentage grades have no automatic letter grade equivalent. Instructors must therefore make clear at the start of the term the percentage to letter grade translation scale that will be used throughout the course.
 - Students should receive a 'final' grade (percentage, letter grade, or index value) for each component of the course. The curving of grades should therefore take place at the time each component is graded, not at the time final grades are calculated.
 - Final course grades should be calculated by simply multiplying the component grades by their appropriate weighting.
 - The option to round grades is at the discretion of the instructor. If final grades are to be rounded, this should be stated in the course outline. A consistent rounding policy should be applied to all students in a class.
 - For core courses with multiple sections, grades should be calculated in the same manner.
 - Each component of the final grade should be reported separately to students (this includes class participation grades).
 - Sections of required core courses are normally expected to have a mean grade of between 4.70 and 6.10 grade points for Masters-level core courses, and between 5.20 and 6.20 grade points for Masters-level electives. For undergraduate courses, the average course grade awarded within a section should be between 5.50 and 7.00. Grade distributions that do not meet this policy must be reviewed by the Area Coordinator or appropriate Program/Specialization Director. The Course Director and the approver should be prepared to explain the basis for the grade distributions that do not meet this policy.
9. Instructors must adhere to the policies communicated in their course outline and at the start of their course.

Grading Scales

The undergraduate grading scale is the common undergraduate grading system mandated by the University. Undergraduate students must maintain a 5.0 average (C+) to remain in good standing.

Grade	Grade Point / Index Value	Description
A+	9	Exceptional
A	8	Excellent
B+	7	Very Good
B	6	Good
C+	5	Competent

C	4	Fairly Competent
D+	3	Passing
D	2	Barely Passing
E	1	Marginally Failing
F	0	Failing

The Masters-level grading system uses the following 9-point system, which contains no “D” grades. Students must maintain a GPA of 4.2 throughout the program and have at least a 4.4 to graduate. The Dean’s List requirement is 6.95 or higher.

Grade	Grade Point / Index Value	Description
A+	9	Exceptional
A	8	Excellent
A-	7	Very Good
B+	6	Good
B	5	Competent
B-	4	Fairly Competent
C+	3	Passing
C	2	Barely Passing
C-	1	Marginally Failing
F	0	Failing

MARCH 2017 DRAFT
Guidelines and Policy on
Using Courses to Recruit Students as Research Subjects

Schulich School of Business

I. Background:

There is increasing interest among Schulich faculty members in using students as subjects in research studies, since doing so has the potential both to benefit students by introducing them to research methods and findings, and to benefit researchers who rely on subject pools. As interest in recruiting students as research subjects grows, it is timely to ensure that our research recruitment practices serve to achieve our twin educational and research missions, and that they adhere to the highest standards of research ethics.

To this end, the following policies regarding recruiting students as research subjects are being jointly proposed by the School's Research and Programs Coordinating Committees. This proposal is situated in the context of York's guidelines for research involving human participants, which determines the standards for ethical research practices for all faculties of the university. It is also sensitive to the context of our particular academic programs from which students are recruited.

II. Motion: The Research and Programs Committees Move that the Schulich School of Business adopt the following policies related to recruiting students as research subjects.

Policy:

The following general principles, grounded in the standards determined by York University's Human Participants Research Committee, apply to instances where students are recruited as research subjects:

- I. Participation of students as research subjects is voluntary and they can withdraw from a study at any time without penalty. This is a key feature of the Informed Consent Form, which the participant reviews and signs before engaging in the study. The Informed Consent form also includes information about confidentiality and related concerns.
- II. Student participants must have a reasonable alternative to receiving credit if they do not wish to serve as participants. Typically, this takes the form of a short, informal research report requiring an equivalent amount of effort and time as the research opportunity.
- III. Professors or instructors may not directly oversee research that involves their own students. Specifically, if a professor or instructor's students are participating in his or her study, then someone else (typically a research assistant) will be responsible for recruiting participants to the study or alternative option, and managing the data so that the students' confidentiality is protected. For instance, the professor or instructor will receive grading data indicating students who should receive credit for the program, without identifying whether they participated in the study or in the alternative. Whenever possible this should be provided after completion and grading of all other assignments. In addition, the final research dataset that the professor or instructor receives will not have any identifying information in it that can compromise student confidentiality.
- IV. In order to make the experience of participating in research more meaningful and transparent, researchers are required to provide a debrief to students explaining the general theme and purpose of the research and the methods used. Students should be given a clear explanation of what the research program is about, why it is relevant to management practice and how it connects to their development as business students. ¹²³

Given the nature of some experiments or studies, finer details about the study hypotheses and theoretical model may be provided after completion of data collection.

- V. In order to better tie research credit to the learning objectives of the relevant course, all participants should complete a reflective writing task that ties each completed study to the relevant aspect(s) of their course. This reflection would normally focus on topical aspects of the research study rather than research methods per se (unless the course is specifically concerned with research methods). For instance, an experiment examining the effects of deceptive marketing tactics on consumer suspicion might ask participants to consider the marketing strategies and tactics from their course that could induce consumer suspicion, what might be done to build/repair consumer trust, or how suspicious vs. trusting consumers might respond to marketing strategies in their course. Focus on application of the research topic, rather than its methodology, helps make each study a unique learning experience and encourages students to recognize the evolving nature of knowledge building in the field.
- VI. Research must be academic in nature and cannot be of a commercial nature

At Schulich, student participation in research studies can be arranged in two possible ways:

- Through the design of a research component directly integrated into the Faculty Council-approved curriculum of a course (hereafter referred to as “**curriculum specified**”) or
- Through agreement on the part of an instructor and students to participate during a particular offering of a course (hereafter referred to as “**discretionary**”).

The following guidelines further specify appropriate practices in the case where a research component is curriculum-specified or discretionary.

Guidelines for Having a Curriculum Specified Research Component in a Course

Since participating in research can provide educational value, it is logical that it may be specified as part of the Faculty Council (FC)-approved curriculum in certain courses. If not already part of the FC approved course outline, the new research component can be added using the usual course modification process (outlined on the ADA website). A relationship should be established between the research, the course learning outcomes, and the course assessment (grading) scheme. The following guidelines should be adhered to when designing a research component into a course to ensure that participation is voluntary for students and potential course instructors:

- Students should be informed about the participation requirements before enrolment in the course through the course description or outline.
- The following information about the research study should be included in the course syllabus and made available to students prior to their enrolment in the course:
 - A generic description of the type of research being conducted, the activities students will complete, and how participation is linked to the course objectives
 - A statement that participation is voluntary
 - An outline of the course credits that can be earned through being a research subject and of the time commitment required to earn the credit for being a subject.
 - A description of an alternative activity or assignment that may be completed for the same credit by students who do not want to participate
 - A statement regarding the HPRC ethics protocol and how it relates to the types of studies in which the students can expect to be asked to participate
- Research participation will constitute a distinct grading component, separate from class participation and from other graded components of class work.

- An appropriate grade percentage to allocate to research participation for undergraduate courses in which a research component is curriculum specified is approximately five percent. This is consistent with the understanding that participating in research is relevant to curricular objectives, yet also with the fact that those who fulfill the research requirements, whether through participating in the subject pool for the number of hours specified or through engaging in one of the alternatives specified (e.g. summarizing a journal article or assisting in data collection) will receive the entire grade percentage allocated.
- Students who choose neither to participate in the subject pool nor to complete the alternative research assignment will be given zero percent for that portion of the course.
- The research activity shall be run in all sections of a course and should involve all students who want to participate.
- Instructors who do not want to participate in the research may request to not teach the course.

Policy for Student Participation in Research Studies on a Discretionary Basis

A research component may be introduced into upper year elective courses on a discretionary basis. As in all research with human subjects, and in particular student populations, students are not required to participate in a research component of a course. The following policy shall be adhered to when designing a discretionary research component in a course or section:

- As the term discretionary implies, course instructors are not obliged to introduce a research component to their course if it is not curriculum specified.
- Students in courses where a research component has been introduced on discretionary basis should be informed about the option before commencement of the course through a note added to the front page of the course outline.
- The following information about the research program should be included in the course syllabus:
 - A generic description of the type of research being conducted, the activities students will complete, and how participation is linked to the course objectives
 - A statement that participation is voluntary and a clarification of the choices available to the student: research participation, the completion of an alternative activity/assignment for the same credit as that offered to participants, or non-participation, at no grade penalty.
 - A description of the alternative activity or assignment, as approved by HPRCⁱ
 - An outline of the course credits that can be earned through being a research subject and of the estimated time commitment required to earn the credit for being a subject or the completion of the alternative activity/assignment.
 - A statement regarding the HPRC ethics protocol and how it relates to the types of studies in which the students can expect to be asked to participate
- Research participation will constitute a sub-component of the class participation portion of the grade. For example, if the total portion of the grade allocated to class participation is 20%, as many as three percentage points of that twenty percent could be earned by the student through participating as a research subject or by participating in the alternate assignment. Those students who choose not to participate in the research component of the course will earn class participation grades in the conventional manner.
- It is recognized that the use of this mechanism constitutes an exception to the policies that forbid supplemental assignments and the grading range for the class GPA. The positive impact of the credit on a student's grade, however, must not be so substantial

as to significantly influence the final letter grade for a course grade. In the undergraduate program, wherein a grade bucket (e.g., the step from a B to a B+) is roughly 5 percentage points, the percentage that can be earned via research participation cannot be more than 3%. Due to the different grading scale, the limit is 2 percentage points in the masters programs. This will ensure that if most students in a course decide to participate and the course GPA resides at the upper end of the allowed grading range before taking into account percentage earned through research participation, the class GPA will only insignificantly exceed the allowed GPA range for the course.

- Researchers must keep track of all students who participate in a study, whether through the lab experience or the alternate assignment. The managers of multiple research labs must coordinate lists to keep ongoing records of research participation. A report must also be submitted to the Office of the Associate Dean Academic each semester one month after the last day of classes. The report must contain the students' names, the course number and section through which they were recruited, the title of the research study for which they were recruited, and whether they participated in the research study itself or the alternate assignment.
 - In practice, there may be discretionary based research opportunities offered in courses in different functional areas (e.g. Marketing, ORGS, Accounting). Credits earned for research in one area, for instance, marketing, cannot be applied to courses in a different area (for instance ORGS or Accounting). The list of eligible courses and sections is supplied to the students prior to participating in the research study.
- a. The conventional alternative for students who want to participate in the research program but not be a subject is for them to write a research paper. When research papers are offered as an alternative to participating as a subject, students are informed that these papers are not formal term papers and that they are simply graded on a pass/fail basis. Papers can, for example, take the form of a reflection on topics from the course of the student's choice, or an application of those topics to some phenomenon also of the student's own choice. An approach used by the Marketing department and lauded by the HPRC as being ideal in terms of equity, is to have the students review a research paper and summarize the main ideas and findings. Students who take this option make an appointment to come to one of the computer labs for an hour, where they read a research paper relating to their course and write a brief paper describing the main conclusions in the paper and its application to their marketing course. The time spent by students in these sessions should be roughly the same as the time research participants spend on their lab-related activities (including reflections, if asked for).

New Course Proposal: EMBA6540 Designing Brand Experiences

1. **Program:** Kellogg-Schulich Executive MBA
2. **Course Number:** EMBA6540
3. **Credit Value:** 2.0
4. **Long Course Title:** Designing Brand Experiences
5. **Short Course Title:** Designing Brand Experiences
6. **Effective Session:** Summer 2017
7. **Calendar (Short) Course Description:**

Focusing on the branded corporation as a value creating system, this course aims to develop (a) an integrative managerial approach and mindset for designing compelling and distinctive brand experiences in today's hyper-competitive marketplace, and (b) the knowledge and perspective necessary to lead, facilitate and support the design and implementation of desired brand experiences and to continuously enhance them over time.
8. **Expanded Course Description:**

The goal of this course is to deepen participants' knowledge of brand management by proposing an integrative managerial approach and mind-set to designing brand experiences to better prepare a company to compete in today's hyper-competitive marketplace. With a fundamental focus on the branded corporation as a value creating system, this course will highlight a strategic approach that will enable participants to (1) comprehend how your leadership philosophy and business strategy provide the foundations for designing compelling and distinctive brand experiences (2) understand why building a brand-centric organizations is crucial to the implementation and evolution of the desired brand experiences, and (3) recognize the process for designing powerful brand experiences and then continuously improving them over time requires a corporation-wide commitment to profoundly understanding the customers companies are choosing to serve.
9. **Rationale:**

In today's hyper-competitive environment, it is crucial for corporations to build lasting relationships with their customer through their brand experiences. Designing such brand experiences needs to be fully integrated with the company's value system and strategy. This course therefore begins by exploring the notion of the branded corporation as a value creating system and then increasingly deepens students' comprehension of the important interdependencies between leadership philosophy and business strategy, building a brand-centric organization, and fostering a corporation-wide commitment to profoundly understanding the customers they are choosing to serve, as the fundamental underpinnings for designing compelling and distinctive brand experiences.
10. **Evaluation:**

The assessment for this course will be based 65% on individual contributions and 35% team-based. Deliverables and their weight for the final grade are as follows:
(i) class contribution (15%) based on attendance and the quality and quantity of verbal remarks, with "significant contributions" adding depth and challenging or redirecting discussion rather than simply providing factual information;

(ii) two written individual assignments (25% each) of up to 1,000 words each that summarize and discuss important conceptual frameworks for the course based on assigned readings;
(ii) a group project (35%) to be gradually completed throughout the course so that participants can demonstrate their knowledge and the application of important concepts, frameworks and tools integral to designing compelling and distinctive brand experiences.

11. Integrated Courses:

This course is not integrated.

12. Crosslisted Courses:

This course is not crosslisted.

13. Faculty Resources:

This course will be taught by adjunct professor Ashley Konson, who is the lead faculty for Schulich's MBA Brand Management program. He is regularly recognized for "Teaching Excellence", having been nominated for the Seymour Schulich MBA Teaching Excellence Award seven times in the past eight years and winning it twice (2nd place in 2009 and 1st place in 2012). Ashley worked in senior and executive level marketing positions in the United States, Canada, and South Africa, with Nestle, Walt Disney, Imax and Holt Renfrew and now leads his own company, Global Brand Leaders, which aims to help clients discover and apply leading thinking and the best practices of brand leaders from around the globe. His applied research focuses, among others on brand and brand and business strategy, brand assets strategy, designing brand experiences, and personal branding.

14. Physical Resources:

This course will be offered annually at Schulich's Keele campus, initially over two weekends and subsequently in a blended/hybrid format combining 40% online preparation with 60% in-class learning. All necessary only resources and the necessary physical resources will be provided by Schulich including through our Learning Management System and the online and physical resources of the York University Library.

15. Bibliography and Library Statement:

All participants will receive physical copies of two books (Disney Institute and Theodore Kinni, *Be Our Guest: Perfecting the Art of Customer Service*, 2011; Alan Pennington, *The Customer Experience Book: How to Design, Measure and Improve Customer Experience In Your Business*, 2016). Any additional required and supplementary reading will be made available electronically through our Learning Management System and/or the York University Library website. As per the attached statement, the York University Library also allows access to other relevant readings and databases.

KS15 MODULE 5 Summer 2017 EMBA6540: DESIGNING BRAND EXPERIENCES

Instructor

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Contents

Instructor Biography	1
Course Description.....	2
Course Learning Outcomes.....	2
Deliverables at a Glance.....	2
Course Material.....	2
Class Preparation and Participation.....	3
Assignments: Description and Evaluation.....	4
Assignments: General Rules.....	6
Calculation of Course Grade	6
Class-by-Class Syllabus.....	7

Instructor Biography

Ashley Konson is the President of Global Brand Leaders Inc. His passion is helping clients discover and apply leading thinking and the best practices of brand leaders from around the globe for *making brands strong inside out*[™]. Prior to founding his company, he worked in senior and executive level marketing positions in the United States, Canada, and South Africa, with Nestle, The Walt Disney Company, Imax Ltd and Holt Renfrew.

Ashley is the lead faculty for the MBA Brand Management program and is regularly recognized for "Teaching Excellence." He is a two-time winner of the prestigious Seymour Schulich MBA Teaching Excellence Award (2012 1st, 2009 2nd). He has been nominated for this award seven times in the past eight years.

Ashley's applied research focuses on: Leadership Philosophy, Brand and Business Strategy, Organizational Design and Culture, Brand Assets Strategy, Designing Brand Experiences, Change Management and Personal Branding

Course Description

The goal of this course is to deepen your knowledge of brand management by proposing an integrative managerial approach and mind-set to designing brand experiences to better prepare a company to compete in today's hyper-competitive marketplace. With a fundamental focus on the branded corporation as a value creating system, this course will highlight a strategic approach that will enable you to (1) comprehend how your leadership philosophy and business strategy provide the foundations for designing compelling and distinctive brand experiences (2) understand why building a brand-centric organizations is crucial to the implementation and evolution of the desired brand experiences, and (3) recognize the process for designing powerful brand experiences and then continuously improving them over time requires a corporation-wide commitment to profoundly understanding the customers you are choosing to serve.

Course Learning Outcomes

1. To develop an integrative managerial approach and mindset for designing compelling and distinctive brand experiences in today's hyper-competitive marketplace
2. To develop the knowledge and perspective necessary to lead, facilitate and support the design and implementation of desired brand experiences and to continuously enhance them over time

Deliverables at a Glance

Student learning in this course occurs through both conscientious preparation for every class, and active contribution in classroom activities. Students will be expected to have reviewed all required readings prior to class. The emphasis in each class will be on integrating the key concepts and learning from these readings, personal observations, and course lectures, through small and large group discussions and in group project work.

Assignment/Task	Quantity	Weight %	Total %	Author/ (individual/Group etc)	Due
Disney's Quality Service Compass: Cast, Setting and Process	1	25	25	Individual	June 3, 2017
Measuring loyalty to drive and deliver your brand experience strategy	1	25	25	Individual	June 23, 2017
Designing a brand experience for a busy restaurant	1	35	35	Group	June 18, 2017
Class contribution	1	15	15	Individual	During four class sessions
			100%		

For details, see "Written Individual Assignments and Group Project Description and Evaluation" (p. 4)

Course Material

The principal materials for the course include: The two books highlighted below; together with the chapter from "Brand Visioning," 3rd Edition, *From Brand Vision to Brand Evaluation*.

Required reading for this course includes the following book[s].

1. Disney Institute and Theodore Kinni, *Be Our Guest: Perfecting The Art Of Customer Service*, Disney Editions, 2011
2. Alan Pennington, *The Customer Experience Book: How To Design, Measure and Improve Customer Experience In Your Business*, Pearson Education, 2016
3. Chernatony, Leslie de, Ch. 4 "Brand Visioning," 3rd Edition, *From Brand Vision to Brand Evaluation*, pp. 113-156, Routledge, 2012

Class Preparation and Participation

Learning in this course is cumulative. This course begins by exploring the notion of the branded corporation as a value creating system and then increasingly deepens students' comprehension of the important interdependencies between leadership philosophy and business strategy, building a brand-centric organization, and fostering a corporation-wide commitment to profoundly understanding the customers you are choosing to serve, as the fundamental underpinnings for designing compelling and distinctive brand experiences.

It is vital therefore, for students to be diligent in preparing for every class if they aspire to maximize their learning during this course.

Preparation. A minimum of 2 hours of work outside of class is required to properly prepare for each class session. Past experience indicates that students should also allocate a minimum of 5 hours of work on average to complete each individual assignment, and a minimum of 15 hours of work to complete the group project. You are responsible for preparing in advance for all classes. This includes reading the relevant material, reviewing lecture notes and conducting any market analysis and personal observation requested during the course by the instructor.

Class Participation (contribution). Attending class and contributing to class discussions is a crucial means of affirming and consolidating the personal learning that is desirable from this course. It is also the key to advancing group learning. "Significant contributions" add depth and challenge or redirect discussion rather than simply providing factual information. Your attendance and the quality and quantity of your verbal remarks will be evaluated and graded prior to the end of each class session. The following scale will be used for assessing your contribution,

Points	Contribution
0	Does not show up for class
1	Attends class but says nothing or very little
2	Contributes to the discussion - most of the contributions are not highly original but demonstrate basic understanding of the case or material - i.e. summarizes case facts or asks questions for clarification and is usually prepared, having read the cases before the class
3	Makes a significant contribution to the class by making important points with a significant element of originality or demonstrating mastery of difficult theoretical issues or concepts; is always prepared having read and analyzed all cases prior to class, shares in class presentations, contributes to in-class group work

Assignments: Description and Evaluation

Individual Assignment #1: Disney's Quality Service Compass: Cast, Setting and Process 25%

Briefly discuss Disney's Quality Service Compass. What are Disney's Common Purpose and Service Standards and explain why they integral to Disney's Delivery Systems. Your research source for this assignment is: Disney Institute and Theodore Kinni, Ch. 2, "The Magic of Service", *Be Our Guest: Perfecting The Art Of Customer Service*

Max length: 1,000 words

Due Date: June 3, 2017

Submission Method: Submit via the Learning Space (turnitin.com) prior to the start of class

Evaluation: Please see the grading rubric that will apply to both individual assignments and the group project below.

Individual Assignment #2: Measuring loyalty to drive and deliver your brand experience 25%

Brand experience strategists have a strong preference for using "loyalty" as a measure for driving and delivering the desired brand experience versus "satisfaction." Briefly summarize the case for "loyalty" and discuss the three key measures recommended by Alan Pennington, Ch. 8, "How to use measures to drive and deliver your experience" *The Customer Experience Book: How To Design, Measure and Improve Customer Experience In Your Business*

Max length: 1,000 words

Due Date: June 23, 2017

Submission Method: Submit via the Learning Space (turnitin.com)

Evaluation: Please see the grading rubric that will apply to both individual assignments and the group project below.

Group Project: Designing a brand experience for a busy restaurant 35%

Completing the group project will require you to demonstrate your knowledge and the application of important concepts, frameworks and tools integral to designing compelling and distinctive brand experiences that will be covered in course readings, lectures notes and class discussions. You will be provided time in each class to begin work on each part of your project under the guidance and supervision of the instructor

Max Length: 7 PowerPoint Slides. (Detailed instructions to be provided at the beginning of the course)

Due Date: June 18, 2017

Submission Method: Submit via the Learning Space (turnitin.com) by midnight

Evaluation: Please see the project requirements and grading rubric below.

For this group project you are required to:

Weight	Expectations
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30%	<i>Develop a leadership philosophy, a business strategy (value proposition) and a brand name for your restaurant</i> using frameworks and tools discussed in class. Detailed instructions will be provided when you are briefed on this project in class.
30%	<i>Develop your Service Compass.</i> Then demonstrate how your People, Setting and Process strategies will support the desired brand experience strategy. You are required to provide four examples of each. Course readings and class discussions will provide you with numerous examples as a catalyst to team creativity
40%	<i>Develop Personas and Customer Journey Maps</i> for your restaurant. You must develop personas for three customer segments being served by your restaurant brand. You must develop two customer journey (experience) maps to support your brand experience strategy: (1) A base map (2) A variant to the base map for one of the personas. You should use frameworks and tools discussed in course reading and in class to assist you with this task.

The following grading rubric will apply to the two individual assignments and to the group project:

A+	An <i>exceptional</i> piece of work that that is <i>creative or innovative</i> in its conception or execution and which uses <i>substantial</i> theory and/or evidence to support its main propositions. It will demonstrate <i>excellent</i> knowledge of the subject material and an ability to apply this knowledge in <i>novel ways</i> to stimulate new insights. It will also have <i>no errors</i> in understanding or applying knowledge, will accurately define <i>all</i> its key terms, and will be <i>very well</i> written or delivered.
A	An <i>excellent</i> piece of work that is <i>highly competent</i> in its conception or execution and which uses a <i>good</i> amount of theory and/or evidence to support its main propositions. It will demonstrate <i>excellent</i> knowledge of the subject material and an ability to apply this knowledge to different contexts. It will also have <i>only minor errors</i> in understanding or applying knowledge, will accurately define <i>all</i> its key terms, and will be <i>very well</i> written or delivered.
A-	A <i>very good</i> piece of work that is <i>competent</i> in its conception or execution and which uses <i>some</i> theory and/or evidence to support its main propositions. It will demonstrate <i>very good</i> knowledge of the subject material and an ability to apply this knowledge to different contexts. It will also have <i>very few errors</i> in understanding or applying knowledge, will accurately define <i>most</i> of its key terms, and will be <i>well</i> written or delivered.
B+	An <i>above average</i> piece of work that is <i>competent</i> in its conception or execution and which uses <i>limited</i> theory and/or evidence to support its main propositions. It will demonstrate <i>reasonable</i> knowledge of the subject material and some ability to apply this knowledge to different contexts. It will also have <i>some errors</i> in understanding or applying knowledge, will accurately define only <i>some</i> of its key terms, and will be <i>reasonably well</i> written or delivered.
B	An <i>average</i> piece of work that is <i>adequate</i> in its conception or execution and which uses <i>limited</i> theory and/or evidence to support its main propositions. It will demonstrate <i>adequate</i> knowledge of the subject material and some ability to apply this knowledge to different contexts. It will also have <i>some errors</i> in understanding or applying knowledge, will accurately define only <i>some</i> of its key terms, and will be <i>adequately</i> written or delivered.
B-	A <i>below average</i> piece of work that is <i>adequate</i> in its conception or execution and which uses <i>limited or no</i> theory and/or evidence to support its main propositions. It will demonstrate <i>below average</i> knowledge of the subject material and <i>limited or no</i> ability to

	apply this knowledge to different contexts. It will also have <i>a number of errors</i> in understanding or applying knowledge, will accurately define <i>few</i> of its key terms, and will be <i>adequately</i> written or delivered.
C+	A <i>below average</i> piece of work that is <i>poor</i> in its conception or execution and which uses <i>limited or no</i> theory and/or evidence to support its main propositions. It will demonstrate <i>below average</i> knowledge of the subject material and <i>limited or no</i> ability to apply this knowledge to different contexts. It will also have <i>considerable errors</i> in understanding or applying knowledge, will accurately define <i>few if any</i> of its key terms, and will be <i>poorly</i> written or delivered.
C	A <i>poor</i> piece of work that is <i>poor</i> in its conception or execution and which uses <i>limited or no</i> theory and/or evidence to support its main propositions. It will demonstrate <i>poor</i> knowledge of the subject material and <i>no</i> ability to apply this knowledge to different contexts. It will also have <i>considerable errors</i> in understanding or applying knowledge, will accurately define <i>few if any</i> of its key terms, and will be <i>poorly</i> written or delivered.
C-	A <i>very poor</i> piece of work that is <i>very poor</i> in its conception or execution and which uses <i>no</i> theory and/or evidence to support its main propositions. It will demonstrate <i>very poor</i> knowledge of the subject material and <i>no</i> ability to apply this knowledge to different contexts. It will also have <i>a lot of errors</i> in understanding or applying knowledge, will accurately define <i>few if any</i> of its key terms, and will be <i>very poorly</i> written or delivered.

Assignments: General Rules

Late Submissions

- Please contact the instructor a reasonable time before the submission deadline if, for any reason, you require an extension for any assignment. Please note that a few hours prior to the deadline is not considered reasonable.
- Assignments received late without an approved extension will receive the standard EMBA penalty – i.e. one letter grade applied each week (or fraction thereof) that the assignment is late. For details see the *EMBA Guideline on Assignment Submission*.

Academic Honesty is fundamental to the integrity of university education and any degree program, and applies in every course offered at Schulich and within the Kellogg EMBA Global Network. This particular course is subject to the rules mandated by York University and the Kellogg Honor Code, which you signed at the outset of the program. For details please refer to your Student Guide and the following website: http://www.schulich.yorku.ca/client/schulich/schulich_lp4w_Ind_webstation.nsf/page/Academic+Honesty!OpenDocument

Accommodations might be sought due to religious reasons, unavoidable absences or disabilities. In these cases, please contact the EMBA office (with copies to the instructor and the academic director).

Calculation of Course Grade

In this class, final course grades will be determined by the following process: All assignments and projects will be marked using the letter grades from A+ through F. To calculate the final grade, these letter grades

for each assignment will be translated into grade points using the conversion scheme detailed below. These are then added using the percentage weight of each assignment and rounded up or down to the nearest full grade point, which is finally translated back into the corresponding letter grade.

Letter Grade	A+	A	A-	B+	B	B-	C+	C	C-	F
Grade Points	9	8	7	6	5	4	3	2	1	0

Class-by-Class Syllabus

Topics, readings, and other preparations for every class are listed below

Class 1: June 2, 2017 2:00-6:15pm THE BRANDED CORPORATION AS A VALUE CREATING SYSTEM

Session Outline:

- The Branded Corporation as a value creating system
- Leadership philosophy (Purpose, Mission & Values)
- First Group Project Work Session

Reading:

- Alan Pennington, Ch. 1 & 2 *The Customer Experience Book: How To Design, Measure and Improve Customer Experience In Your Business*
- Chernatony, Leslie de, Ch. 4 "Brand Visioning," 3rd Edition, *From Brand Vision to Brand Evaluation*, pp. 113-156

Class 2: June 3, 2017 2:00-6:15pm A BRAND-CENTRIC ORGANIZATION IS INTEGRAL TO THE DESIRED BRAND EXPERIENCE

Session outline:

- Disney: The "Practical Magic" of Cast, Setting, Process and Integration
- Starbucks: The "Special Blend" of Coffee, Partners, Customers, Stores and Neighbourhood
- Second Group Project Work Session

Reading:

- Disney Institute and Theodore Kinni, Ch. 2. (Required) 3.4.5. (Optional) *Be Our Guest: Perfecting The Art Of Customer Service*
- Alan Pennington, Ch. 3 & 4, *The Customer Experience Book: How To Design, Measure and Improve Customer Experience In Your Business* (Optional)

Assignment Due: Submit via the Learning Space (turnitin.com) prior to the start of class

- Individual Assignment #1: Disney's Quality Service Compass: Cast, Setting and Process 25%

Class 3: June 4, 2017 2:00-6:15pm THE BRAND EXPERIENCE STRATEGY PROCESS AND IMPORTANT TOOLS

Session outline:

- Design thinking
- Creating memories: expectations, emotions, the five senses
- Moments of truth and pain points
- Personas and customer journey mapping

- Third Group Project Work Session

Reading:

- Alan Pennington, Ch. 6 & 7, *The Customer Experience Book: How To Design, Measure and Improve Customer Experience In Your Business*

Class 4: June 23, 2017 1:00-4:15pm INSIGHT FOR DESIGNING AND IMPROVING THE BRAND EXPERIENCE

Preparation:

- Voice of the employee
- Voice of the customer
- Sharing Group Project learning
- It's a wrap!

Reading:

- Alan Pennington, Ch. 8, "How to use measures to drive and deliver your experience" *The Customer Experience Book: How To Design, Measure and Improve Customer Experience In Your Business*

Assignment Due: Submit via the Learning Space (turnitin.com) prior to the start of class

- Individual Assignment #2: Measuring loyalty to drive and deliver your brand experience strategy 25%

MEMORANDUM
Peter F. Bronfman Business Library

SUBJECT: Library Statement for KSEMBA
Course: EMBA6540 Designing Brand Experiences

FROM: Sophie Bury. Head, Peter F. Bronfman Business Library.

DATE: March 13th, 2017

This course is designed to teach an integrative managerial approach and mindset to design effective brand experiences that can give companies an edge in the current hyper-competitive marketplace. This course will be offered at the Schulich School of Business for students enrolled in the KSEMBA program.

Required readings for this course are outlined in the course proposal. This includes two books and a chapter from a book on the topic of brand visioning. The library owns the latter book, and the other books have been ordered for addition to the collection. E-book versions have been ordered where available.

The library offers additional relevant resources on topics explored in this course. A wide range of books are available with relevant Library of Congress subject headings including but not limited to: “Branding (Marketing),” “Corporate Image,” “Brand Name Products – Marketing,” and “Brand Name Products – Case Studies”. A key e-book platform of relevance is *Books 24x7*. Streaming videos are also available on the topic of branding and brand experience especially through the *Films on Demand*, and *Kanopy Streaming* platforms.

In addition, York University Libraries provide KSEMBA students with access to a range of databases, containing media and journal articles. Relevant databases include *Factiva*, *Proquest Business*, *PsycInfo*, *Business Source Complete* and *Lexis Nexis Academic*. Students can use these databases to identify articles on themes taught in this course to supplement assigned course readings. In addition, the database *Warc Database* is relevant to this course as it offers articles, case studies, videos, research papers and other content on a range of brand-related topics.

Students can also consult the library’s research guides: www.library.yorku.ca/web/bbl/guides for resources and strategies on themes of relevance to this course. The guides to “Finding Business Articles” and “Market Research” (containing a section on branding resources) are especially recommended. In addition, BRYT (Business Research at York Toolkit) – bryt.library.yorku.ca/ - is recommended as it offers short videos and real-time database walkthroughs which guide students through conducting both company and articles research.

Core library services available to support student work in this course include reference and instructional support. Assistance with information resources is available in-person, by email, by telephone, by chat reference via an IM service, and through appointments with a librarian. Library instruction sessions on relevant materials tailored to this course are available on request by the course instructor by contacting Sophie Bury at the Peter F. Bronfman Business Library.

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich MBA Program

2. Course Number and Credit Value

HIMP 6110 3.00

3. Course Title

a) Long Course Title

UNDERSTANDING THE CANADIAN HEALTH INDUSTRY - THE ROLES, RESPONSIBILITIES AND CHALLENGES TO IMPROVE HEALTH

b) Short Course Title

UNDERSTANDING THE CANADIAN HEALTH INDUSTRY

4. Existing Pre-requisites/Co-Requisites

All 5100-series Required Foundations of Management Core Courses or permission of instructor.

5. Type of Course Change (indicate all that apply)

	in course number
	in credit value (provide course outline)
X	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
X	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
	expire course
	other (please specify)

6. Effective Session of Proposed Change(s)

May 2017

7. Academic Rationale

The current title is too long and does not convey the main concepts we wish to deliver. The change will allow us to market the course better and reflect what is offered by our competitors.

8. Proposed Course Information

Existing Course Information (Change from)	Proposed Course Information (Change to)
<p><i>TITLE:</i> UNDERSTANDING THE CANADIAN HEALTH INDUSTRY - THE ROLES, RESPONSIBILITIES AND CHALLENGES TO IMPROVE HEALTH</p> <p><i>SHORT TITLE:</i> UNDERSTANDING THE CANADIAN HEALTH INDUSTRY</p> <p><i>DESCRIPTION:</i> Today's major health challenges demand that industry participants (healthcare providers, institutional managers, pharmaceutical and biotech companies, policy makers, etc.) be aware of each other's roles, values, responsibilities and perspectives. During the course, students will be mapping and modelling the health industry. We will use multi-faceted current health care challenges as "cases" to revise the maps and provide insights into management solutions.</p>	<p><i>TITLE:</i> THE BUSINESS OF HEALTHCARE</p> <p><i>SHORT TITLE:</i> BUSINESS OF HEALTHCARE</p> <p><i>DESCRIPTION:</i> This course examines the role of the private sector within the multi-faceted publicly-funded healthcare program, including major industry segments such as pharmaceuticals, medical devices, consulting, the role of IT and public-private partnerships. All industry participants need to be aware of the roles played by other sub-industries.</p>

9. Consultation

This course is not integrated nor cross-listed, and there are no changes in integration and cross-listings.

Originator

Amin Mawani
Signature

November 7, 2016
Date

Amin Mawani

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Joseph Mapa
Signature

November 7, 2016
Date

Joseph Mapa
Name of Coordinator or Director

HIMP
Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Ashwin Joshi
Signature

November 7, 2016
Date

Ashwin Joshi
Name of Program Director

MBA Program
Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl
Signature

March 23, 2017
Date

Markus Biehl
Name of Committee Chair

MPC-PCC Committee
Committee

Required Attachments

- For changes in the number of credits, course title or course description, please attach the Schulich course outline (which must conform to program norms; see the Program Assistant for details).
- For cross-listed / integrated courses, please include a signed statement of agreement from the director of the other graduate course / other degree program.

Send to

Send an electronic copy of all forms and attachments, and forward emails of support from other faculty members, to the appropriate program committee secretary.

Course Outline

Fall 2017

_____ 7 – 10 pm

Room _____

Instructor

Mr. Jimmy Yang

(416) 735-9264

iyang@schulich.yorku.ca

iyang@garrisonhealth.ca

Office hours:

Assistant

Clara Kan

N305A

(416) 736-2100 ext. 77960

ckan@schulich.yorku.ca

About the Course Instructor: Jimmy Yang is a strategy and operations professional in health care and life sciences and has spent the majority of his career working at Fortune 500 companies. He is a Managing Director at Garrison Health, a boutique consulting firm based out of Toronto that focuses on clinical services planning, operations, and advanced analytics. He formerly worked in Deloitte Consulting's National Health Services practice and has held roles at GlaxoSmithKline and ScheringPlough. He has served as an Evaluator in the HTX Commercialization for Emerging Startups Program, advises health IT startups at MaRS Discovery District and Communitech-Waterloo, and has worked with or consulted to over 50 organizations spanning hospitals, community and primary care, government, not for profits, and private sector companies. He currently supports the Schulich Executive Education Centre as a Program Director, assisting with open and custom program development.

Brief Description

This course examines the role of the private sector within the multi-faceted healthcare industry, including segments such as pharmaceuticals, medical devices, consulting, the role of IT and public-private partnerships. It will also explore the design and effective use of information that can drive performance and accountability in healthcare organizations ranging from hospitals to pharmaceuticals and biotech companies.

Prerequisites: All 5100-series Required Foundations of Management Core Courses or permission of instructor.

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance.....	3
Course Material.....	3
Student Preparation for Class and Class Participation: Expectations.....	4
Class-by-Class Syllabus.....	4
Written Assignments/Projects: Descriptions.....	9
Evaluation of Written Assignments/Projects and Exams	10
Calculation of Course Grade	10
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	11
Quick Reference: Summary of Classes, Activities and Deliverables	11

Course Learning Outcomes

Upon completion of this course, students should possess the following competencies:

a. Depth and breadth of knowledge

- Develop familiarity & understanding of the methodologies and approaches in health services and clinical services planning
- Understand and appreciate health system funding and different incentives that motivate behavior and outcomes
- Developing a greater understanding of effective planning for performance

b. Knowledge and methodologies

- Introduction to traditional health data sets, their uses and applications (e.g. MIS, DAD, NACRS)
- Introduction to prescription and drug data (e.g. IMS data, pharmacy data)
- Understanding quality measurement and Pay for Performance Principles and approaches
- Introduction to planning, performance, and business case frameworks

c. Application of knowledge

- Focus on how to think and plan effectively for health system initiatives and strategies
- Better understand approaches and frameworks explained above and creating alignment between organization, key stakeholders, and local or broader system

d. Communication skills

- Better understanding the core tenets of an effective business case
- Understanding stakeholder perspectives and meaningful analysis for justifying investments in healthcare and life sciences
- Applying system level knowledge to support business case development and framing

e. Awareness of limits of knowledge

- Implementation requires significantly more information than may be available outside the organizational setting (i.e., students are not hospital employees, for example).
- Common sources of information and data – e.g., CIHI, MIS, Ministry of Finance, StatsCan, ICES
- Common assumptions used to approximate costs and benefits
- The limited applicability of results

f. Autonomy and professional capacity

- Understand the different roles played by different decision-makers and their incentives
- Ability to make assumptions and illustrate professional judgment
- Understand the limited applicability of results
- Understand the pragmatic and political implications of results

g. Other aspects

- Appreciate creative ways of analyzing data by examining various examples from the literature
- Gain an understanding of “Big Data” in health and examples of approaches being used

Deliverables at a Glance

In the table below, the impact of each task on your final grade for the course is indicated in the “% weight” column.

Assignment/Task	Quantity	% Weight	Total %	Author
Class Participation	1	20%	20%	Individual
Assignments	2	20%	40%	1 Group Assignment with Class Presentation + 1 Individual Assignment
Final assignment	1	40%	40%	Individual
			100%	

Course Material

Specific reading material has been organized for this course. Not every source is required for each class. Every week, you will be responsible for the assigned reading for the class.

Selected readings for each class are selected as required pre-reading for class and assignment preparation. Each reading will be available online or through reserved readings at the library form selected periodicals or journals.

There is not textbook or course kit for this course. The suggested required readings may change. Any readings not available online will be made available through *reserved readings* at the library.

Reserved readings at the library have been selected from periodicals and journals. Go to <http://www.library.yorku.ca>, click on the “Reserves” tab and type in “<Course Code>” to access these readings.

The *Course Materials Database (CMD)* has been created within Schulich’s Lotus Notes. It contains general information for Schulich students and information and materials specific to this course. Check it frequently.

Student Preparation for Class and Class Participation: Expectations

The value of class sessions depends greatly on student involvement, collegiality, and input. Students are encouraged to prepare well for every class and during class, to concentrate on making relevant contributions to discussions.

Course Philosophy

- Bring **real-world examples** in health care and life sciences into the classroom to pair with specific curriculum and course content.
- Arm students with a strong foundational understanding of common health data sets and the economic and funding relationships spanning government, healthcare providers, and life sciences.
- Share experiences in ‘building a case’ and ‘communicating effectively’ to stakeholders spanning front line clinicians to management to Board level.
- Bring healthy debate and provocative perspectives to each class.
- Bringing ‘industry into the classroom’ through relevant guest lecturers to introduce cases from the field

Preparation: Students are expected to have read the assigned material. Discussion questions are only meant to serve as a preparation for course and class discussion.

Class Participation (contribution): Participation and quality dialogue will significantly enrich your and the experience of your classmates, and can make a class special. After each class, the instructor will record evaluations. A 10-point total score is employed; 2 points for full class attendance, 1 point for a substantive and relevant contribution (to a maximum of 3 points); the remaining 5 points is scored for the overall quality and relevancy of the set of contributions per class. A student can earn as much from one high quality comment as from three comments of low quality. Students will receive their participation grades for the first half of the semester at the end of Class 7.

Class-by-Class Syllabus

The course is built using an **Applied Learning Model**. Real world examples, concepts, and frameworks will be brought to the class and specific cases will be brought forward for group discussion and inquiry. One week will be reserved for Assignment #2, which will involve group presentations. For specific classes, special guest leaders from industry will participate in our classes.

Note: If any changes in this schedule become necessary, notifications will be posted on the course CMD, and when changes need to be announced between classes, an email will be sent to students’ Lotus Notes email accounts, notifying them of the change.

Week 1: Introduction and Health System Overview

An overview of each of the key health system players spanning hospitals, pharmas, long-term care, government, not for profits, private providers, and life sciences. An examination of the structural relationships in the health system.

Required Reading:

1. No pre-reading for this class

Discussion Questions:

- Who are the key players and stakeholders that make up our health system?

Week 2: Health System Funding and Evaluation

Examining how funding is allocated and understanding the criteria that drive allocation such as quality based metrics and population demand.

Required Reading:

1. CHSRF: Hospital Payment Mechanisms; 2011; http://www.cfhi-fcass.ca/Libraries/Hospital_Funding_docs/CHSRF-Sutherland-HospitalFundingENG.sflb.ashx (pages 1-8)

Discussion Questions:

- What outputs and behaviours does each approach to hospital and health system payments motivate?
- What outputs and behaviours do we want hospital and health system payments to encourage?

Week 3: In-class case: A look into Health System Funding Reform

Case: Quality Based Procedures (QBP)

Further examining key metrics that drive funding and clinical programming decisions as well as assessing system performance.

Required Reading:

1. Ontario Ministry of Health, Health Quality Branch: Quality Based Procedures (pages 1-14). [http://www.ohima.ca/eventdocs/Presentation to OHIMA Michael October 4 2012 vMGS FINAL.pdf](http://www.ohima.ca/eventdocs/Presentation%20to%20OHIMA%20Michael%20October%204%202012%20vMGS%20FINAL.pdf)

Discussion Questions:

- What are the different components of a QBP and what stakeholders do they address?
- What are the implications of QBP funding for providers? For patients?

Week 4: Assessing Performance in the Health System

Understanding the metrics and key performance indicators by key players in the health industry measure themselves. An investigation into how key performance indicators are developed, both from a data formation and stakeholder buy-in process perspective.

Required Reading:

1. CIHI: Health System Performance – Health Care Consumer Perspective <http://ourhealthsystem.ca>
2. Canadian Institute for Health Information: Evaluating the Impact of Activity Based Funding on Health System Performance; (chapter 2 only) http://www.cihi.ca/CIHI-ext-portal/pdf/internet/EVALUATING_IMPACT_ABF_EN

3. Health Quality Ontario:
Quality Reporting on Ontario's Health Care System (by Sector) -
<http://www.hqontario.ca/public-reporting>

Discussion Questions:

1. What can be learned from looking at system level metrics?
2. What is the role of system level performance reporting?

Week 5: In-class case: Examining the Balanced Scorecard

Case: Hospital for Sick Children – discussing the core components that form a Balanced Scorecard

We will learn about the elements that make up a balanced scorecard in health care. Through real case examples, we will examine the process from planning to engagement to development to implementation of a key performance and evaluation tool in the sector.

Required Reading:

1. SickKids Scorecard; <http://www.sickkids.ca/Performance/SickKids-Scorecard/>
2. Zelman, Pink, Matthias: Use of the Balanced Scorecard in Healthcare.
<http://jsofian.files.wordpress.com/2006/12/use-of-bsc-in-health-care.pdf>

Discussion Questions:

- What makes a scorecard valuable as a performance and evaluation tool?
- How do scorecards assist with health care management

Week 6: In-class case: Effective Service Utilization

Assignment #1: Written Assignment due at beginning of class

Case: Variability in prevalence of caesarean section procedures

An investigation of case study examples of clinical utilization variation. This session will illustrate how the application of data analysis to system levers can inform and influence decision-making, system planning and policy setting.

Required Reading:

1. Caesarian Section: The Star goes inside the operating room for this look at why C-section rates matter, Toronto Star, May11, 2012.
http://www.thestar.com/life/2012/05/11/caesarean_section_the_star_goes_inside_the_operating_room_for_this_look_at_why_csection_rates_matter.html Pulling back the curtain on Canada's rising C-section rate. May 29, 2014. <http://healthydebate.ca/2014/05/topic/quality/c-section-variation>
2. POWER study highlights differences in C-section and hysterectomy rates in Ontario. Women'sHealthMatters.ca ; Women's College Hospital.

<http://www.womenshealthmatters.ca/feature-articles/feature-articles/power-study-highlights-differences-in-c-section-and-hysterectomy-rates-in-ontario>

Discussion Questions:

- What factors create variation in healthcare utilization in the Canadian context?
- What opportunities do these areas of variation present for the health system?

Week 7: In-class case: Clinical Services Planning

Case: Preparing for the complex needs of the seniors population

Developing an understanding of the clinical and program planning process and identifying key inputs and considerations to be taken in order to plan and implement clinical services in a community and broader system.

Required Reading:

1. Seniors Health Should be a Federal Priority; <http://www.theglobeandmail.com/life/health-and-fitness/health/seniors-healthcare-should-be-a-federal-priority/article13836147/>
2. Conference Board of Canada: Future Care for Canadian Seniors, Why It Matters. <http://www.sfu.ca/uploads/page/06/ORGcdn047.pdf>

Discussion Questions:

- How will the complex needs of an aging population affect the overall delivery of health care to all populations?
- What models of care should be considered to better serve our seniors population?

Week 8: Class Presentations – Assignment #2

Assignment #2: Written Assignment due at beginning of class; Class Presentation Week

Examining the role of managers and leaders in health care in planning effectively and preparing to meet strategic, operational, and clinical objectives.

Required Reading:

- None this week

Discussion Questions:

- What are the challenges that leaders and policy makers face in using data to support performance and accountability objectives?

Week 9: The Rising Costs of Medication

The drug development and research paradigm has shifted dramatically over the last decade and the life sciences industry is in a period of re-invention and adjustment. We will learn about the drug discovery and development continuum and how the shifting economics and risk has created challenges and opportunities in the life sciences sector

Required Reading:

1. Health Affairs: The Changing Structure of the Pharmaceutical Industry.
<http://content.healthaffairs.org/content/23/1/10.full>

Discussion Questions:

- What role should pharmaceutical and biotechnology companies play as a partner in a health care system?
- What are the challenges and opportunities that you see in the life sciences industry?

Week 10: In-class case: Examining health equity in life sciences

Case: Market Access for Special Populations and Rare Diseases

An evaluation of the drug approval and pricing process and the path to market access for life sciences companies and the public alike. Taking a patient/consumer oriented view to medication.

Required Reading:

1. How Rising Drug Costs Swallowed My Health Care; CUPE Economic Report;
<http://archive.cupe.ca/updir/Fraserhealthcarespendingreport.pdf>
2. Senate Committee on Social Affairs, Science, and Technology: Prescription Pharmaceuticals in Canada; <http://www.parl.gc.ca/Content/SEN/Committee/411/soci/rep/rep20mar13-e.pdf>
3. PwC: Rising Medical Costs Trend Report; 2014; http://www.pwc.com/en_us/us/health-industries/behind-the-numbers/assets/medical-cost-trend-behind-the-numbers-2014.pdf

Discussion Questions:

- What roles do pharmaceutical companies and regulatory / approval bodies in government have to ensure that the cost of drugs are fair on behalf of consumers?
- What inputs and perspectives must they consider in determining their roles?

Week 11: Big Data in Health Care: Understanding its Meaning, Evolution, and Application

An examination of the evolution, potential, challenges and real world application of 'big data'. A cross sectional view of the common approaches, tools, methodologies, and skills that are used along the big data / data analytics continuum.

Required Reading:

1. Health Information Science and Systems; Big data analytics in healthcare: promise and potential; 2014; <http://www.hissjournal.com/content/pdf/2047-2501-2-3.pdf>
2. Project Artemis: Case Example; 2013;
https://www.ibm.com/smarterplanet/global/files/ca_en_us_healthcare_smarter_healthcare_data_baby.pdf

Discussion Questions:

- How would you define the overall maturity of the health care sector to harness 'big data'?
- What is your definition of big data?

Week 12: In-class case: Big Data at Work: Technology Companies in Health Care

Assignment #3 due at the beginning of class.

Case: Infonaut Inc.

Examining the role of technology and innovative startups and their ability to help improve overall performance in a health care setting. Gaining a unique perspective on how start up technology-based companies work together with health care and life science companies to spur better overall performance. [Cases: Infonaut Inc.]

Required Reading:

1. Asthmapolis Case Study; 2012; <http://www.propellerhealth.com/wp-content/uploads/2012/10/Cost-of-Asthma-vz2.pdf>
2. McKinsey Institute: Big data revolution in healthcare; 2013; http://www.payerfusion.com/wp-content/uploads/2014/02/The_big_data_revolution_in_healthcare-1.pdf

Discussion Questions:

- What are barriers for providers or organizations to adopt new and potentially innovative technology?
- Where are the areas of greatest potential for new innovation using data?

Written Assignments/Projects: Descriptions

Please complete all papers below in 12-point font, single-spaced, and adhere strictly to page maximum set out.

There are three assignments in this course. Two of the assignments are individual (the first assignment and the final third course assignment). The second assignment will be a group-based assignment with a presentation component). The specifications for them are described below.

Due: Assignment 1: White Paper Summary (individual)

Summarize the concepts, frameworks, and core components of Weeks 1 to 4, and use the reading material and additional personal reach where necessary.

Please use the following example as the framework for this assignment: An international learning mission from Dubai is visiting you (you can choose to be any one province or Canada) They are coming to learn about your health care system, specifically about the topics raised in Weeks 1 to 4, and will have to bring back a report to their health leadership about the how your health system is structured, funded, as well as a perspective on what seems to be working and not working in the province.

Max length: 4 pages, 12 point font, single-spaced

Value: 20%

Due: Assignment 2: Key Performance Indicator Framework (choice of scenarios; group of 3-4)

Choose one of the scenarios (to be introduced in class), build a Planning and Performance briefing memo and presentation. The Memo contains the following main headings:

Overall Objective, Rationale, Business Case Inputs Used, Specific Aims, Stakeholders Affected, Desired Outcome. The Presentation will be to 2-3 real health professionals who will wear the hat of 'Clinician', 'Management Team', 'Board Member'; the presentation will be to seek the approval of this stakeholder to move ahead on this initiative.

Max length: Briefing Memo - 3 pages; Presentation - 10 PowerPoint slides (maximum)

Value: 20%

Due: Assignment 3: Planning the future Ontario Health Care System

Take this opportunity to build a plan for the Ontario health care system and creatively apply concepts that have been covered in this course. Please use the Balanced Scorecard framework as a core framework in your plan. Consider a plan that goes out 5 years and try to provide your system view as to how Ontario can improve the delivery of health care to its residents. Use of relevant diagrams or graphs are acceptable.

Max length: 12 pages, 12 point font, single-spaced

Value: 40%

Evaluation of Written Assignments/Projects

The student must submit all assignments at the beginning of the class.

References

- References should be at the end, not produced as footnotes or end of chapter notes.
- You should use the APA style of referencing for your assignment. Details on using this format can be found here: http://www.lib.uwaterloo.ca/user_ed/APAcitationstyle.html
- Guidance on when you should be referencing can be found here:
- http://www.lib.uwaterloo.ca/user_ed/citingyoursources.html

Formatting

- All pages should be numbered for easy reference.
- Use standard spacing and do not adjust borders or width/heights of document.
- Grammar/spelling check they are correct; they can ruin the whole tone of an assignment.
- Use underlining, indentation, etc., to ensure good visual appeal.
- Make sure the whole assignment follows a consistent pattern.

Style

- Avoid verbosity/padding and do not waste your time, or more importantly, the reader's time; it only detracts from the assignment. Clarity and brevity are key words that should be kept in mind.
- Always check that anything stated is justified by evidence in the assignment. You may not be present to explain your justifications to the reader.

Calculation of Course Grade

Students' marks for assignments, midterm and final exam will be added up out of a total of 100 marks. This total will then be converted to letter grades based on a normal distribution or a bell curve.

General Academic Policies: Grading, Academic Honesty, Accommodations

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, elective courses are expected to have a mean grade between 5.2 and 6.2.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, see the Student Handbook or the Student Services & International Relations website:

http://www.schulich.yorku.ca/client/schulich/schulich_lp4w_lnd_webstation.nsf/page/Enrolment+Grades+and+Convocation+OpenDocument#tabs-2

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found in the Student Handbook and on the Student Services & International Relations website:

http://www.schulich.yorku.ca/client/schulich/schulich_lp4w_lnd_webstation.nsf/page/Academic+Honesty+OpenDocument

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services.

For counseling & disability services, contact Student Services or see <http://www.yorku.ca/cds/>.

Quick Reference: Summary of Classes, Activities and Deliverables

Class No., Title and Date	In-Class Case/Exercise	Reading Preparation (excluding cases and optional readings)	Written Preparation
1. Introduction and Health System Overview	n/a	n/a	n/a
2. Health System Funding and Evaluation	n/a	-Hospital Payment Mechanisms	n/a
3. In-class case: Health System Quality and Funding	Case: Quality Based Procedures in Ontario	-Quality based procedures for stroke care	n/a
4. Assessing Performance in the Health System	n/a	-Wait Times Reporting -Key Health Indicators -Health Care Consumer Perspective	n/a
5. In-class case: Examining the Balanced Scorecard	Case: Hospital for Sick Children Balanced Scorecard	-Sick Kids Balanced Scorecard -Balanced Scorecard in US Health	n/a
6. In-class case: Effective Service Utilization	Case: Prevalence of cesarean sections	-Inside the operating room -POWER study	Assignment #1 due (beginning of class)

Class No., Title and Date	In-Class Case/Exercise	Reading Preparation (excluding cases and optional readings)	Written Preparation
7. In-class case: Clinical Services Planning	Case: Planning for Aging Population	-Seniors Health Trends -Seniors planning at the federal level	n/a
8. Class Presentation Week	Class Presentations to guest leadership panel	None this week	Assignment #2 due (beginning of class)
9. Rising Costs of Medication	n/a	-Changing structure in the pharmaceutical industry	n/a
10. In-class case: Health equity	Case: Access to Medication for Special Populations and Rare Diseases	-Prescription pharmaceutical report -PwC Medical Cost trend report	n/a
11. Big Data in Health Care	n/a	-Promise and Potential Whitepaper -Project Artemis Example	n/a
12. In-class case: Big Data at Work	Case: Infection control company (Infonaut Inc.), Silicon Valley health	-Asthmapolis Case -Big data revolution in healthcare	Assignment #3 due (beginning of class)

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich MBA Program

2. Course Number and Credit Value

HIMP 6130 3.00

3. Course Title

a) Long Course Title

STRATEGIC MANAGEMENT OF HOSPITALS

b) Short Course Title

STRATEGIC MANAGEMENT OF HOSPITALS

4. Existing Pre-requisites/Co-Requisites

All 5100-series Required Foundations of Management Core Courses or permission of instructor.
CO-REQUISITE: SB/SGMT 6000.030

5. Type of Course Change (indicate all that apply)

	in course number
	in credit value (provide course outline)
X	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
X	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
	expire course
	other (please specify)

6. Effective Session of Proposed Change(s)

May 2017

7. Academic Rationale

Current title is a bit narrow and may not attract students not interested in pursuing careers in hospitals. New title will also enable better marketing.

The change is more of an attempt to summarize the course description and make it more general rather than change any significant content. The change will allow us to market the course better and reflect what is offered by our competitors.

8. Proposed Course Information

Existing Course Information (Change from)	Proposed Course Information (Change to)
<p><i>TITLE:</i> STRATEGIC MANAGEMENT OF HOSPITALS</p> <p><i>DESCRIPTION:</i> This course examines strategic management in hospital enterprises, large and small, from the perspective of a health administrator. The course applies strategic management concepts in complex management settings - very qualified people, complicated multi-disciplinary situations, changing technologies and methods of health delivery (telemedicine, e-health vs. in situ hospitals and clinics), complex public policy issues relating to scale, critical mass, and expensive technologies vs. small, clinical doctor-patient relationships.</p>	<p><i>TITLE:</i> STRATEGY IN HEALTHCARE</p> <p><i>DESCRIPTION:</i> This course examines the roles played by hospitals, governments, regional authorities, as well as their decision-making and accountability structures. The course also examines costs and financing; stakeholders; consolidation and clinical integration; challenges and threats. The course illustrates strategic management concepts in various management and multi-disciplinary settings, changing technologies and methods of health delivery.</p>

9. Consultation

This course is not integrated nor cross-listed, and there are no changes in integration and cross-listings.

Originator

Amin Mawani
Signature

November 7, 2016
Date

Amin Mawani

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Joseph Mapa
Signature

November 7, 2016
Date

Joseph Mapa
Name of Coordinator or Director

HIMP
Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Ashwin Joshi
Signature

November 7, 2016
Date

Ashwin Joshi
Name of Program Director

MBA Program
Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl
Signature

March 23, 2017
Date

Markus Biehl
Name of Committee Chair

MPC-PCC Committee
Committee

Required Attachments

- For changes in the number of credits, course title or course description, please attach the Schulich course outline (which must conform to program norms; see the Program Assistant for details).
- For cross-listed / integrated courses, please include a signed statement of agreement from the director of the other graduate course / other degree program.

Send to

Send an electronic copy of all forms and attachments, and forward emails of support from other faculty members, to the appropriate program committee secretary.

Course Outline

Fall 2017

Tuesdays, 7:00 – 10:00 pm, start date and room TBD

Instructor

Joseph Mapa
Executive Director and Adjunct Professor, HIMP
Schulich School of Business

Sinai Health System Foundation
1001 – 522 University Ave
Toronto, ON
M5G 1W7
416-586-8641
Joseph.mapa@sinaihealthsystem.ca

*Joseph Mapa, CEO, Sinai Health System Foundation
MBA, FCCHSE, FACHE*

Assistant

Clara Kan
N305A SSB
416-736-2100 x77960
ckan@schulich.yorku.ca

Joseph Mapa assumed the role of CEO, Sinai Health Foundation in 2016, after serving for 2 years as Founding President & CEO of Sinai Health System – an amalgamation of Mount Sinai Hospital (acute care), Bridgepoint Active Healthcare (complexity medicine and rehab), the Lunenfeld - Tanenbaum Research Institute, together with Circle of Care (a homecare provider). Before the formation of Sinai Health System, Joseph served as President and CEO of Mount Sinai Hospital for 14 years.

Joseph is a graduate of the Institute of Health Policy, Management and Evaluation, University of Toronto and he also obtained his MBA from the Rotman School of Management, University of Toronto. He is a Fellow of the Canadian College of Health Leaders, a Fellow of the American College of Healthcare Executives, and a member of both the Association for Healthcare Philanthropy and Association of Fundraising Professionals. In 2013 Joseph was appointed Executive-in-Residence and Adjunct Professor in the health industry management specialization stream of the MBA program in the Schulich School of Business. In 2015 he was appointed Executive Director of this specialization (Health Industry Management Program) - where he also teaches on leadership and strategy.

He is Past Chair of the Council of Academic Hospitals of Ontario and completed terms on the Governing Council of the University of Toronto and the Board of the Canadian Nurses Association. He currently serves on the Advisory Board of the Women's Executive Network – Canada's Most Powerful Women: Top 100; the Canadian Health Services Research Foundation Advisory Council; and, Canada's 10 (Most Admired Cultures) Board of Governors.

Joseph is the author of numerous articles, and is co-author of three books focusing on healthcare management. He also co-edited a book on effective government relations in the healthcare industry with Professor Peggy Leatt of the University of North Carolina, Chapel Hill.

He is the recipient of the Chairman’s Award for Distinguished Service by the Canadian College of Health Leaders, the Arbor Award in recognition of his contribution and service to the University of Toronto, and the Teaching Excellence Award at the Schulich School of Business. He also received the Canadian College of Health Leaders inaugural national Mentorship Award, and in 2012 he was recognized with the Queen Elizabeth II Diamond Jubilee Medal. In 2014, Joseph was recognized in a feature by Financial Post Magazine on “some of the notable graduates from internationally ranked MBA schools in Canada.”

Brief Description

This course examines the roles played by hospitals, governments, regional authorities, as well as their decision-making and accountability structures. The course also examines costs and financing; stakeholders; consolidation and clinical integration; challenges and threats. The course illustrates strategic management concepts in various management and multi-disciplinary settings, changing technologies and methods of health delivery.

Prerequisites: All 5100-series Required Foundations of Management Core Courses Co-requisite: SB/SGMT 6000.030

Contents

Course Learning Outcomes..... 2
 Deliverables at a Glance..... 3
 Course Material..... 3
 Student Preparation for Class and Class Participation: Expectations..... 3
 Class-by-Class Syllabus 4
 Written Assignments/Projects: Descriptions..... 7
 Evaluation of Written Assignments/Projects..... 8
 Calculation of Course Grade 9
 General Academic Policies: Grading, Academic Honesty, Accommodations and Exams..... 9
 Quick Reference: Summary of Classes, Activities and Deliverables 10

Course Learning Outcomes

The course will examine strategy in healthcare from the perspectives of key stakeholders. The health care environment is complex, challenged with constrained resources, system restructuring, high demand, patient expectations, and new public accountabilities and emerging competitive “pay-for-performance” funding models. Furthermore, with the traditional model for public funding in the form of annual global budgets and in the absence of a competitive market environment - the industry has been slow to adopt contemporary processes and tools. Strategy in healthcare will provide critical insights into how difference stakeholders are reshaping the healthcare industry to improve quality, capacity and productivity.

Strategy is about gaining competitive advantage by replacing entrenched structures and legacy approaches with new approaches and models focused on key areas. The curriculum for this course will reflect on the strategic priorities of key stakeholders to higher performance.

This course enables students to:

- Understand the unique strategic challenges (including latest restructuring, regulatory frameworks and new funding models) faced by hospital leaders
- Apply effective management strategies to create high performance hospitals and how to advance their agendas
- Appreciate the challenges and opportunities for strategic management of hospitals in an era of

- increasing accountability and patient expectations
- Ability to recognize how the donors of a hospital can influence the trajectory of a hospital's strategy
- Analyze a real hospital's strategic issues and communicate their analyses and recommendations to a panel of senior healthcare executives

Deliverables at a Glance

In the table below, the impact of each task on your final grade for the course is indicated in the “% weight” column.

Assignment/Task	Quantity	% Weight	Total %	Author
Group project	1	30	30	Group
Individual paper	1	30	30	Individual
Take home exam	1	25	25	Individual
Class participation	1	15	<u>15</u>	Individual
			100%	

For details, see “Written Assignments/Projects: Descriptions” (p. 7) and “Evaluation ...” (p. 8).

Course Material

Required reading for this course has been assembled into a course kit which is available for purchase at the University Bookstore.

Course kits are available for purchase from the York University Bookstore.

Reserved readings at the library have been selected from periodicals and journals. Go to <http://www.library.yorku.ca>, click on the “Reserves” tab and type in “<Course Code>” to access these readings.

Student Preparation for Class and Class Participation: Expectations

The course will be comprised of twelve sessions, with the first nine covering the five key paths as follows below. Each session will involve a lecture component, (with a number of possible expert guest speakers) to be followed by an interactive exercise (e.g. case study, current event, e-mails, article etc...) that will draw out and stimulate key learning's. Background materials, as appropriate, will be provided in advance. Each exercise will illicit your deliberations, response and action plan as though you were a senior manager of the hospital depicted in the case study.

The final three sessions will involve a healthcare roundtable and group presentations to a panel of hospital experts, with each group presenting on an assigned “best practice” analysis of one hospital using one of the five key strategic management paths.

➤ Path 1 – Driving Performance through Leadership

Session 1 (Sept 15) - Pre-requisites for effective executive leadership – defining and leading a high-performance organization

Session 2 (Sept 22) - Leading system transformation – understanding your space, leveraging trends and best practices from other sectors (e.g. integrated and coordinated delivery) new models of care and business practices, pushing boundaries, organizational redesign etc.

➤ **Path 2 – Reaching Performance Goals Through Corporate Strategy and Operational Effectiveness**

Session 3 (Sept 29) - Developing and deploying a dynamic business strategy – trends and organizational adaptation

Session 4 (Oct 6) - Operational strategy in support of business strategy – execution for operational effectiveness and great efficiencies (including process redesign, productivity, cost control etc.)

➤ **Path 3 – Measuring for Improved Performance**

Session 5 (Oct 13) - Driving a culture of quality and improvement – balanced scorecards indicators, focus on clinical outcomes, patient experience outcomes, population health outcomes etc.

Session 6 (Oct 20) - Enabling performance with information technology (IT)

➤ **Path 4 – Focus on Culture and People for better Performance**

Session 7 (Nov 3) - Organizational Culture and Human Resource capabilities

Session 8 (Nov 10) - Managing people – Building your teams, working in teams, performance feedback etc.

➤ **Path 5 – Leveraging Stakeholders to achieve Performance Goals**

Session 9 (Nov 17) - Stakeholder relations within and beyond your organization – influencing change, win-win solutions etc.

➤ **Session 10 (Nov 24) - Healthcare Roundtable**

Theme: TBD

➤ **Learning from “best practice” organizations**

Session 11 (Dec 01) - Group presentations and discussion

Session 12 (Dec 08) - Group presentations and discussion

Class Participation (contribution). Please refer to “Evaluation of Written Assignments/Projects and Exams (p. 8)

Class-by-Class Syllabus

Topics, readings, and other preparations for every class are listed below

Reserved readings at the library have been selected from periodicals and journals. Go to <http://www.library.yorku.ca>, click on the “Reserves” tab and type in “<Course Code>” to access these readings.

Harvard Business Review Articles - Exception

Exception: Harvard Business Review articles cannot be placed on e-reserve due to licensing restrictions that apply. See here for more information: <http://www.library.yorku.ca/cms/bbl/collections/harvard-business-review/>

Please go to this web site to find recommended HBR article readings available at the library through subscription e-resources themselves: <http://researchguides.library.yorku.ca/HBR>

Or type in "Harvard Business Review" under "eResources" search and use online access (Business Source Premier) – download pdf file and try printing from there with some exceptions which can only be viewed but not be printed.

Note: If any changes in this schedule become necessary, notifications will be posted on the course CMD, and when changes need to be announced between classes, an email will be sent to students' Lotus Notes email accounts, notifying them of the change.

Sept 15 & **Path 1 – Sessions 1 and 2: Driving Performance through Leadership**
Sept 22

Readings:

Required:

Lombardi, Donald N. 2005. Preparing for the Future: Management and Leadership Strategies. *Healthcare Executive*. (Nov-Dec) 8.

Roberts, C.C. and E.J. Connors. 1998. Core Responsibilities of Board Trustees, Major Challenges Facing Governing Boards of Healthcare Delivery Organizations, and Achieving Effective Trusteeship. *Journal of Healthcare Management* 43(2): 111-113. 43(4):297-301; 43 (5): 389-392.

Pointer, Dennis D. and Charles M. Ewell. 1995. Really Governing: What Type of Work Should Boards be Doing? *Hospital and Health Services Administration* 40(3): 315-331

Optional:

Kotter, John P. 2007. Leading Change: Why Transformation Efforts Fail. *Harvard Business Review* (January): 96-103.

Goleman, Daniel. 2000. Leadership That Gets Results. *Harvard Business Review* (March-April): 78-90.

Kotter, John P. 2001. What Leaders Really Do. *Harvard Business Review* (December): 85-96

Montgomery, Cynthia A. and Kaufman, Rhonda. 2003. The Board's Missing Link. *Harvard Business Review* (March): 5-11.

Sept 29 & **Path 2 – Sessions 3 and 4: Reaching Performance Goals through Corporate Strategy and Operational Effectiveness**
Oct 6

Readings:

Porter, Michael (2008). The Five Competitive Forces That Shape Strategy. *Harvard Business Review* (January) 78-93.

Parnell, John A. (2010). Strategic Clarity, Business Strategy and Performance. *Journal*

of Strategy and Management: 3 (4): 304-324.

Beer, Michael, and Eisenstat, Russell A. 2000. The Silent Killers of Strategy Implementation and Learning. *Sloan Management Review* 41 (4): 29-40.

Mintzberg, Henry. 1987. Five Ps for Strategy. *California Management Review* (Fall): 11-24

Mango, P.D. and Louis A. Shapiro. 2001. Hospitals get serious about operations. *The McKinsey Quarterly* 2: 74-85.

Sardone, F.J. and Sue Reinoehl. 2006. Strategy, Stability and Strength : Bransons Journey to Excellence. *Healthcare Executive* (May-June) 16-20.

Oct 13 & Path 3 – Sessions 5 and 6: Measuring for Improved Performance

Oct 20

Readings:

Porter, M.E. and Elizabeth Olmsted Teisberg. 2007. How Physicians Can Change the Future of Health Care. *JAMA* (March): 1103-1111.

Gulati, Ranjay 2007. Silo Busting: How to Execute on the Promise of Customer Focus. *Harvard Business Review*. (May) 98-108.

Burt, Tequila 2006. Reinventing the Patient Experience Satisfying Customers can Lead to Continuous Growth. *Healthcare Executive* (May-June) 8-14.

Porter, M.E. and Elizabeth Olmsted Teisberg. 2004. Redefining Competition in Health Care. *Harvard Business Review* (June): 64-76.

Kaplan, R.S. and David P. Norton. 2005. The Balanced Scorecard – Measures that Drive Performance. *Harvard Business Review* (July - August) 172-180

Kaplan R.S, and David P. Norton. 2007. Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review* (July-August) 150-161

Wurster, C. J., Lichtenshein, B.B., Hogeboom, T. and Thielst, C. (2009) Strategic, Political, and Cultural Aspects of IT Implementation: Improving the Efficacy of an IT System in a Large Hospital. *Journal of Healthcare Management* (May – June) 54(3): 191-207

Adler, P.S. 2003. Performance Improvement Capability: Keys to Accelerating Performance Improvement in Hospitals. *California Management Review* 45 (2) :12-33

Edmondson, A.C. 2003. Framing for Learning: Lessons in Successful Technology Implementation. *California Management Review* 45 (2): 34-54.

Nov 3 & Path 4 – Sessions 7 and 8: Focus on Culture and People for better Performance

Nov 10

Readings:

Guillory, W.A. and Daniel Guillory. 2004. The Roadmap to Diversity, Inclusion, and High Performance. *Healthcare Executive* (July-August) (19) p. 24.

Erickson, T. and Lynda Gratton. 2007. What it means to work here. *Harvard Business Review* (March) 104-112.

Bassi, L. and Daniel McMurrer. 2007. Maximizing your Return on People. *Harvard Business Review* (March) 115-123.

Ready, D.A. and Jay A. Conger. 2007 Make your Company a Talent Factory. *Harvard Business Review* (June) 69-77.

Nov 17 **Path 5 – Session 9: Leveraging Stakeholders to achieve Performance Goals**

Readings:

Werhane, P.H. 2000. Business Ethics, Stakeholder Theory, and the Ethics of healthcare Organizations. *Cambridge Quarterly of Healthcare Ethics*, 9, 169-181.

Leatt, Peggy and Joseph Mapa. 2003. *Government Relations in the Health Care Industry : Conclusion: Synthesis and Insight*. Westport, CT : Praeger Publishers p.195. (course kit)

Daake, Don and Anthony P. William 2000. Understanding Stakeholder Power and Influence Gaps in Healthcare Organizations: An Empirical Study *Healthcare Management Review* 25 (3) 94-107. (course kit)

Nov 24 **Session 10: Healthcare Roundtable**

To be distributed as applicable

Dec 1 **Session 11: Group presentations and discussion**

Dec 8 **Session 12: Group presentations and discussion**

Written Assignments/Projects and Exam[s]: Descriptions

Oct 6 Individual assignment "question" distributed to students

- Oct 13 **DUE:** Group project proposal outlining objectives, general background information and approach to data collection – 2 pages (5%)
- Nov 24 **DUE:** Individual assignment due any time before beginning of Session 10
- Nov 24 Individual take-home exam distributed to students
- Dec 1 or **DUE:** Presentations of group project's key insights and takeaways – 20 min with a 10 min
Dec 8 feedback session (25%)
(TBD)
- Dec 15 **DUE:** Individual Take-home exam

Evaluation of Written Assignments/Projects and Exams

(1) Class participation

Class participation is based on a combination of attendance, class material preparation, enthusiastic participation, shared insight and meaningful contribution. Please e-mail the instructor in the event that you are unable to attend.

(2) Group project – Best Practice Analysis

The final two sessions will involve group presentations to a panel of hospital experts, with each group presenting on a “best practice” analysis of an assigned hospital (TBD.) Each assigned hospital will correspond to one of the five key strategic management paths. As part of the project, each group will conduct hospital site visits to assess how the hospital is addressing the strategic management path (see assignment questions below.) The group will be connected to a hospital liaison to facilitate this work. Group projects will be evaluated on 2 components:

- i. A proposal outlining objectives, general background information and approach to data collection – 2 pages due by session 5 (5%) – to be e-mailed directly to jmapa@mtsinai.on.ca
- ii. A presentation of the group's key insights and takeaways based on the questions below – 20 min with a 10 min feedback session (25%) in either Session 11 or 12 (TBD)

Strategic Management Path	Assigned Organization and Groups (TBD)
Driving Performance through Leadership	Holland Bloorview Kids Rehabilitation Hospital Julia Hanigsberg, President & CEO
Reaching Performance Goals Through Corporate Strategy and Operational Effectiveness	The Hospital for Sick Children Michael Apkon, President & CEO
Measuring for Improved Performance	Circle of Care Michael Scheinert, President & CEO
Focus on Culture and People for better Performance	Women's College Hospital Marilyn Emery, President & CEO
Leveraging Stakeholders to achieve Performance Goals	Toronto Local Health Integration Network (LHIN) Susan Fitzpatrick, Chief Executive Officer

Assignment Questions

1. What are the characteristics of a high performing organization in the strategic management path that your group was assigned?
2. Apply these characteristics to analyze how the organization is performing, using specific examples.
3. Based on this analysis, identify opportunities for improvement with suggestions for change management.

IT IS EXPECTED THAT ALL GROUP MEMBERS MAKE A MEANINGFUL CONTRIBUTION. Group members will have an opportunity to redistribute the group grade among the members of the group.

(3) Individual Assignment

The individual assignment will take the form of an “answer” to a question related to one of the strategic paths that we will be covering throughout the course. Students will be provided with the assignment “question” on **Session 4 (October 6th)**. The assignment will be due anytime before the beginning of **Session 10 (November 24th)**.

THE ASSIGNMENT IS TO BE 8 PAGES, DOUBLE SPACED, 12 PT FONT. THE ASSIGNMENT, AS WELL AS THE TAKE HOME EXAM (SEE BELOW,) WILL BE MARKED ANONYMOUSLY. THEREFORE, PLEASE E-MAIL YOUR ASSIGNMENT AND TAKE HOME EXAM TO ckan@schulich.yorku.ca (CLARA KAN, FACULTY SECRETARY) WHO WILL IN-TURN E-MAIL YOUR SUBMISSIONS TO ME WITHOUT YOUR IDENTIFICATION. I WILL IN-TURN E-MAIL YOUR EVALUATION TO CLARA KAN, WHO WILL FORWARD IT BACK TO YOU. ALL ASSIGNMENTS WILL BE REVIEWED VIA *TURNTIN* TO ENSURE ORIGINALITY.

The individual assignment, the take home exam (see below), together with your group presentations will be evaluated on the quality of analysis, quality of writing / communication (clarity, coherence, etc.) well argued-points of view and new insights.

(4) End of Semester Individual Take-home Report

The take-home exam will comprise of an analysis, addressing a “question” based on an overarching theme covered in the course. The analysis is expected to incorporate key course insights and takeaways examined throughout the semester. The take-home exam “question” will be provided to students on **Session 10 (November 24th)**. The analysis is to be a maximum of 5 pages, double spaced, 12 pt font, and must be submitted to Clara Kan, by e-mail (ckan@schulich.yorku.ca), on **Tuesday, December 15th**.

Calculation of Course Grade

Evaluation

1) Class participation	15%
2) Group project	30%
3) One individual paper based on a question pertaining to a specific paths (i.e. leadership, strategy, measurement, culture and people or stakeholder relations)	30%
4) Take home exam case based on an overarching theme covered in the course	<u>25%</u>
	100%

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

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http://www.schulich.yorku.ca/client/schulich/schulich_lp4w_ind_webstation.nsf/page/Academic+Honesty!OpenDocument

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services.

For counseling & disability services, contact Student Services or see <http://www.yorku.ca/cds/>.

Quick Reference: Summary of Classes, Activities and Deliverables

Class No., Title and Date	In-Class Case / Exercise	Reading Preparation (excluding cases and optional readings)	Written Preparation
1 & 2 Sept 15 &22 Driving Performance through Leadership		<ul style="list-style-type: none"> • Leading Change • What Leaders Really Do • Preparing for the Future • The Board's Missing Link • Core Responsibilities of Board Trustees, Major Challenges Facing Governing Boards of Healthcare Delivery Organizations, and Achieving Effective Trusteeship • Really Governing 	
3 & 4 Sept 29 & Oct 6 Reaching Performance Goals through Corporate and Operational Strategies		<ul style="list-style-type: none"> • The Five Competitive Forces That Shape Strategy • Strategic Clarity, Business Strategy and Performance • The Silent Killers of Strategy Implementation and Learning • Five Ps for Strategy • Hospitals get serious about operations • Strategy, Stability and Strength 	Oct 6: Individual assignment “question” distributed to students
5 & 6 Oct 13 & 20 Measuring for Improved Performance		<ul style="list-style-type: none"> • How Physicians Can Change the Future of Health Care • Silo Busting • Reinventing the Patient Experience • Satisfying Customers can Lead to 	Oct 13: DUE Group project proposal

Class No., Title and Date	In-Class Case / Exercise	Reading Preparation (excluding cases and optional readings)	Written Preparation
		Continuous Growth <ul style="list-style-type: none"> • Redefining Competition in Health Care • The Balanced Scorecard – Measures that Drive Performance • Using the Balanced Scorecard as a Strategic Management System • Strategic, Political, and Cultural Aspects of IT Implementation: Improving the Efficacy of an IT System in a Large Hospital • Performance Improvement Capability • Framing for Learning 	
<i>Oct 27 - NO CLASS (Reading Week)</i>			
7 & 8 Nov 3 & Nov 10 Focus on Culture and People for better Performance		<ul style="list-style-type: none"> • The Roadmap to Diversity, Inclusion, and High Performance • What it means to work here • Maximizing your Return on People • Make your Company a Talent Factory 	
9 Nov 17 Leveraging Stakeholders to achieve Performance Goals		<ul style="list-style-type: none"> • Business Ethics, Stakeholder Theory, and the Ethics of healthcare Organizations • Government Relations in the Health Care Industry Conclusion • Understanding Stakeholder Power and Influence Gaps in Healthcare Organizations 	
10 Nov 24 Healthcare Roundtable		<ul style="list-style-type: none"> • To be distributed as applicable 	Nov 24: DUE Individual assignment Nov 24: Individual take-home exam distributed to students
11 & 12 Dec 1 & Dec 8 Group presentations and discussion			Dec 1 & 8: DUE Presentation of group project
<i>Individual Take-home report DUE Dec 15th</i>			

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich MBA Program

2. Course Number and Credit Value

HIMP 6180 3.00

3. Course Title

a) Long Course Title

INNOVATION AND CHANGE ACROSS THE HEALTH INDUSTRY

b) Short Course Title

INNOVATION IN HEALTH INDUSTRY

4. Existing Pre-requisites/Co-Requisites

All 5100-series Required Foundations of Management Core Courses or permission of instructor.

5. Type of Course Change (indicate all that apply)

	in course number
	in credit value (provide course outline)
X	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
X	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
	expire course
	other (please specify)

6. Effective Session of Proposed Change(s)

May 2017

7. Academic Rationale

We propose to add content on entrepreneurship into the course – an area of strength for Schulich. Employment trends and competitors' course offerings are reflecting an emphasis on entrepreneurial skills, and therefore this course will add a substantial component on entrepreneurship. New title will enable better marketing.

8. Proposed Course Information

Existing Course Information (Change from)	Proposed Course Information (Change to)
<p><i>TITLE:</i> INNOVATION AND CHANGE ACROSS THE HEALTH INDUSTRY</p> <p><i>DESCRIPTION:</i> Healthcare leaders face challenges of influencing (1) venture capitalists (2) government (3) suppliers (pharma and biotech) and (4) hospitals. This course explores value creation through the art and science of business planning to drive investment, innovation and transformation in healthcare. Students will analyze and write business plans for the four different healthcare stakeholders.</p>	<p><i>TITLE:</i> ENTREPRENEURSHIP AND INNOVATION IN HEALTHCARE</p> <p><i>DESCRIPTION:</i> This course examines the entrepreneurial landscape in healthcare (e.g., long-term care and nursing homes), the role of disruptive technologies, innovation, new business models, leveraging public-private partnerships, understanding complex regulatory requirements, and the need for human capital. This course explores value creation through the art and science of business planning to drive investment, innovation and transformation in healthcare.</p>

9. Consultation

This course is not integrated nor cross-listed, and there are no changes in integration and cross-listings.

Originator

Amin Mawani
Signature

November 7, 2016
Date

Amin Mawani

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Joseph Mapa
Signature

November 7, 2016
Date

Joseph Mapa
Name of Coordinator or Director

HIMP
Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Ashwin Joshi
Signature

November 7, 2016
Date

Ashwin Joshi
Name of Program Director

MBA Program
Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl
Signature

March 23, 2017
Date

Markus Biehl
Name of Committee Chair

MPC-PCC Committee
Committee

Required Attachments

- For changes in the number of credits, course title or course description, please attach the Schulich course outline (which must conform to program norms; see the Program Assistant for details).
- For cross-listed / integrated courses, please include a signed statement of agreement from the director of the other graduate course / other degree program.

Send to

Send an electronic copy of all forms and attachments, and forward emails of support from other faculty members, to the appropriate program committee secretary.

Winter 2018

Thursdays 7 – 10 PM

Room ____ SSB

Instructor

Aditya Pai
Associate Partner,
Watson for Genomics Global Sales Leader
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Brief Description

This course examines the entrepreneurial landscape in healthcare (e.g., long-term care and nursing homes), the role of disruptive technologies, innovation, new business models, leveraging public-private partnerships, understanding complex regulatory requirements, and the need for human capital. This course explores value creation through the art and science of business planning to drive investment, innovation and transformation in healthcare.

Prerequisites/Corequisites/Course Exclusions:

All 5000-series Required Foundations of Management Core Courses
HIMP 6110 or HIMP 6130 or with the permission of the Instructor.

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance.....	2
Course Material.....	3
Student Preparation for Class and Class Participation: Expectations.....	4
Class-by-Class Syllabus.....	5
Written Assignments/Projects: Descriptions.....	13
Evaluation of Written Assignments/Projects	134
Calculation of Course Grade	134
General Academic Policies: Grading, Academic Honesty	144

Course Learning Outcomes

This course seeks to develop relevant skills and expertise in those interested in transforming healthcare systems. The key guiding question for the course has been framed as follows: “How might we transform and innovate within the health system to improve outcomes, access, safety and quality given an environment of scarce resources?” Subsidiary linked questions are used throughout the course to focus the conversation and learning.

Expected learning outcomes from this course include:

- Ability to identify opportunities for change, innovation and transformation in different sectors in the health industry
- Knowledge of and the ability to develop key elements of a business case, including how to adjust content for different contexts
- Ability to take the perspectives of key stakeholders into account when developing and communicating a business case and he ROI
- Understanding the preferred strategy and approach to adopt in different contexts in order to be successful in getting approvals and moving the opportunity forward.

Deliverables at a Glance¹

Summary of the assignments and grading by due date follows:

	<i>GRADE</i>		<i>Due Date</i>	<i>AUTHOR</i>
<i>Entrepreneur Write-up</i>	20%		Following Week 3 –	Individual
<i>3 Case analyses</i>	3x10%	Cases	As assigned	Group
<i>Project -Preliminary analysis of medtech/ life sciences company chosen</i>	10%	Project	Week 7	Individual
<i>Project Presentation – Executive Pitch</i>	10%	Project	Week 12	Individual
<i>Project Final Report on medtech/life sciences company chosen</i>	30%	Project	Week 12	Individual

Course Material

Readings have been identified per the weekly schedule outlined below. Other readings may be added throughout the course.

Text Book for Entrepreneurship background: Spinelli, Ensign, & Adams New Venture Creation 2014

¹ See more detailed descriptions on Page 13, including the opportunity to work with an Executive Coach

Second Canadian Edition McGraw-Hill Ryerson Higher Education.

Course Readings:

Readings included in the course kit

- Recommended Reading of the following book (not included in the course package):
 - The Innovator's Prescription: A Disruptive Solution to the Healthcare Crisis, By Clayton Christensen
- Hammermesh, Kirin. Syndexa and technology transfer at Harvard University. Harvard business case. 2009. 9-808-073
- Pisano, Weber, Szydlowski. Pfizer's Centres for Therapeutic Innovation. HBR. 2014. 9-615-024
- Horbaczewski, Rothaermel. Merck (in 2009): Open for Innovation? McGraw Education. 2013. MH0009; 0077645065.
- Daemmrch. A Managerial Perspective on Clinical Trials. HBR. 2008. 9-709-033
- George, Palepu, Knoop. Novartis: Leading a Global Enterprise. HBR. 2014. 9-413-096.
- Arthaud-Day, Rothaermel, Zhang. Genentech (in 2011): After the Acquisition by Roche. McGraw Hill Education. MH0014. 0077645065.
- Pai. Cipla Global Ltd.: Generics versus Drug Discovery. International Journal of Case Studies Management. 2015. 13(4). HEC116.
- Hamermesh, Kind, Knoop. Neurotrack and the Alzheimer's Puzzle. HBR. 2016. 9-816-072
- Yemen, Snell. AstraZeneca: Transforming How New Medicines Flow to Patients. 2012. Darden business publishing. University of Virginia. UV 6507.
- Steenburgh, Hammaker. Pricing the EpiPen. This is Going to Sting. Darden Business Publishing, University of Virginia. 2016. UV7186.
- Quench, Rodriguez. 23andMe: Genetic Testing for Consumers (A). 2014. HBR. 9-514-086

Harvard Business Review Articles - Exception

Exception: Harvard Business Review articles cannot be placed on e-reserve due to licensing restrictions that apply. See here for more information:

<http://www.library.yorku.ca/cms/bbl/collections/harvard-business-review/>

Please go to this web site to find recommended HBR article readings available at the library through subscription e-resources themselves: <http://researchguides.library.yorku.ca/HBR>

Or type in “Harvard Business Review” under “eResources” search and use online access (Business Source Premier) – download pdf file and try printing from there with some exceptions which can only be viewed but not be printed.

To access HBR articles in the library, you can also review the instructions provided by Clara Kan on the HIMP 6180 CMD.

York University library website has a listing of journals, books and other resources for Health Industry Management. Students will be expected to review this link to learn more about the resources available for assignments and projects

<http://researchguides.library.yorku.ca/healthindustrymanagement>

Each section of a Schulich-based course has a Course Materials Database (‘CMD’) created within Lotus Notes. Every CMD includes some important general information for Schulich students.

Student Preparation for Class and Class Participation: Expectations

This class is highly interactive and is enhanced by student involvement and input. Those who take the opportunity to put their thoughts into words learn far more than those who simply listen passively. Students are encouraged to prepare well for every class and during class, to concentrate on making significant contributions to discussions.

Preparation includes (1) analysis of the readings based on the course themes and key questions, (2) preparation of conceptual and practical questions for all guest speakers, (3) being an active participant in class discussions including conversations that explore issues across the domains, and (4) providing constructive and thoughtful feedback to class members during preparatory dry run presentations. “Significant contributions” are those that add depth and challenge or redirect discussion rather than simply providing factual information.

If you miss a class, you are responsible for arranging with your classmates to get copies of any handouts, and for finding out what was discussed in class. Material distributed in class will usually be posted to the CMD when copyright allows.

Class-by-Class Syllabus

Emphasis is placed on the integration of theory and application. To that end, the course is organized as a combination of instructor-led dialogue based on the readings, peer-to-peer engagement in the

classroom, guest presentations from outside experts, video clips, case studies and individual student analysis, reflection and demonstrated learning.

More specifically, the course will explore three phases of entrepreneurship and innovation as it pertains to the health industry: identification of the entrepreneurial opportunity, analysis of this opportunity and development of the business case, and mobilization of support for the change whether in the policy, provider or supplier domain.

Your role in the course: Entrepreneur in the health industry. You are looking at established and emerging business models to successfully start a new venture in the health industry.

The following groups of stakeholders will broadly be addressed vis a vis their role in the healthcare industry.

Payers: Who pays for health services in Canada? Internationally? How do such payments get made?

Providers: Providers include a focus on the pharmaceutical, life sciences, med tech sectors. This segment also includes academic medical research institutions

Technology suppliers: Includes IT companies that provide healthcare technology services

Policy Maker: Includes policy setters in Canada and internationally as relevant to health industry

Patient: The role of Key opinion Leaders and their role in the health industry

The following list of lecture topics and readings indicates the material to be read, reviewed and/or prepared for the various class sessions. Required readings must be covered prior to the class. If any changes in this schedule become necessary, notifications will be posted in the course CMD, and where such changes need to be announced between class sessions, an email will be sent to students' email accounts, notifying them of the change. Students are expected to read more scholarly papers and where longer papers have been assigned, the Professor will identify the key pages in advance. Supplementary readings may be provided during the course.

Typically, the teaching of more substantive content elements or a presentation by an outside guest will occur during the first half of class where it is felt that the guest speaker can add a unique perspective based on their work experience. Following a break, students will be engaged in more interactive and small group work.

Week 1: INTRODUCTION

Material to be covered:

- Review of course outline
- Review the health industry context and examples of current innovations
- Basics of entrepreneurship; why the health industry is ripe for entrepreneurs
 - Creativity and business ideas in healthcare, pharma, med-tech
 - Where should we search for ideas?
 - When is an idea a qualified opportunity?
 - Who will fund it?

- Who will sustain it?
- When do you exit?
- Background on basic medical and life sciences terminology
 - Define such terms as innovation, disruptive innovation [process based vs technology based, sustaining vs disruptive] transformation, complexity and systems thinking, chronic disease management, acute care, healthcare transformation
 - The Pharmaceutical value chain: why it takes so many years and close to \$1-1.5 billion to bring a drug to market
 - The Genomics revolution
- Introduce the three phases of the process: identification of an opportunity, analysis and building the business case, and mobilizing support
- Differentiate business case development from other types of planning and management processes

Prep:

- Review course outline
- Groups will be assigned for the case analysis
- Browse through the background resources –and other resources to which you might have access - to get a sense of what is happening with respect to innovation in the health industry in Canada.

Resources and Background Materials:

- The Conference Board of Canada: Briefing December 2009: *The Health Enterprise – Charting a Path for Health Innovation* (you will need to create an e-library account (free) in order to view the document) <http://www.conferenceboard.ca/e-library/abstract.aspx?did=3365>
- The Innovator's Prescription: A Disruptive Solution to the Healthcare Crisis, By Clayton Christensen
- Genomic Medicine Primer by Aditya Pai (will be provided electronically)
- Sources for examples of where innovation is taking place across the sector :
 - Institute of Clinical Evaluation Studies <http://www.ices.on.ca/> Multiple reports outlining some of the key issues in the health sector
 - Premiers Council Report on Health Innovation http://www.councilofthefederation.ca/phocadownload/publications/health_innovation_report-e-web.pdf
 - Centre for the Advancement of Health Innovations <http://www.conferenceboard.ca/networks/cahi/default.aspx>
 - Advisory Panel on Healthcare Innovation <http://www.hc-sc.gc.ca/hcs-sss/innovation/index-eng.php>
 - Making Care Mobile: <http://www.pwc.com/ca/en/healthcare/virtual-health-making-care-mobile-canada.jhtml>
 - Leading Health Care Innovation Insight Center <https://hbr.org/insight-center/innovating-for-value-in-health-care>

- Putting Innovation to Work: The Better Care Faster Coalition 2013 available at <http://www.bettercarefaster.ca/BFCPuttingInnovationtoWork.pdf>
- Transforming Care for Canadians 2012 Canadian Academy for Health Sciences <http://www.cahs-acss.ca/wp-content/uploads/2011/09/cdm-final-English.pdf>
- Canadian Foundation for Healthcare Improvement <http://www.cfhi-fcass.ca/Home.aspx> - mythbusters; what if...a number of interesting and thought provoking sections

Weeks 2: COMMERCIALIZATION IN THE HEALTH INDUSTRY: BECOMING AN ENTREPRENEUR

Topics covered

- How does the entrepreneur find an idea?
- Where do innovations occur?
- How do you commercialize the entrepreneur's idea?
- What role does design thinking play in identifying and designing innovations?
- What are the tools and structures required to bring an entrepreneurial culture?
 - Start up
 - Established organization
- What are the tools and structures required by management to introduce and manage entrepreneurship and innovation?
- Examples of innovation and the makings of an entrepreneur:
 - Universities
 - Start ups
 - Established companies (pharmaceutical, med-tech, IT)

Pick one healthcare / Life sciences/ Med-tech innovation that you have really been excited about. Your entrepreneurial brief will be based on this. As an entrepreneur how will you successfully commercialize your idea? Come prepared to share ideas with respect to the type of innovation or innovation space within the health industry that you would like to explore for your group project.

GUEST LECTURER: Entrepreneur EXPERT FROM LIFE SCIENCES – MED TECH INDUSTRY – Dr Saeid Babei, CEO Abgenix – TO BE CONFIRMED

Read:

1. McCreary L (2010) Kaiser Permanente's Innovation on the Front Lines. *Harvard Business Review*. September. Pages 88-92
2. Brown T. (2008) Design Thinking. *Harvard Business Review*. June. Pages 85-92
3. Martin R. (2007) How Successful Leaders Think. *Harvard Business Review*. June. Pages 61-67
4. Christenson C. Overview of disruptive innovation at <http://www.claytonchristensen.com/key-concepts/>

Weeks 3 - Understanding the Entrepreneurial Opportunity

Topics covered

- Entrepreneurial decision: Make? Buy? License?
- Market Assessment – Is it worth it? Preliminary look at ROI

- The Global Market and why it's important
- Protecting IP
- The role of technology transfer offices
- Who owns the idea?
- Continue to explore the databases with respect to chronic disease care and management innovations.
- Make or Buy; Merge, JV, license?
- Come open to new ideas and with the intent of identifying a focus area for your group.
- Access to capital – sources of capital
 - Who do you approach for funding?
 - How far along does your concept have to be?
 - What are some different funding agencies?
 - What does an application look like? (to be expanded upon in next lecture)
 - What are the requirements and processes
 - Tech transfer – what is tech transfer? Where are they located? What are their roles, processes and issues?
 - What is the role of Tech Transfer vs. VC?

Optional Readings:

- Christensen C, Bohmer R and Kenagy, J. Will Disruptive Innovations Cure Health Care. *Harvard Business Review* September-October, 2000
- The Future of Medicine: Squeezing out the doctor. *The Economist* June 2, 2012
<http://www.economist.com/node/21556227/print>
- Paradis Z J and McGraw D. 2007. Naked **innovation** uncovering a shared approach for creating value http://nakedinnovation.com/wp-content/uploads/2014/01/NakedInnovation_ParadisandMcGaw_v.9.pdf

Assignment Due:

- **Submit your Entrepreneurial brief based on the idea you picked in class 2**

GUEST LECTURER: EXPERT FROM START UP WHO DEVELOPED AND SUCCESSFULLY TRANSLATED IDEA INTO A COMPANY, JOHN WILMS – CEO of NP Screen

Week 4: THE IMPORTANCE OF A BUSINESS PLAN FOR YOUR ENTREPRENEURIAL VENTURE

Topics covered

Give further thought to your innovation space and come with ideas and questions

- Why is a business case needed?
- What constitutes a good business case: content and structure?
- How do you identify successfully the key 'buyer' of your business case, and what it is that will motivate them to act?

- How can risk, ambiguity and uncertainty be addressed in a business plan to facilitate decision making?
- How is success measured?

Read:

1. Chan Kim W. and Mauborgne R. (2000) Knowing a Winning Business Idea when you see one *Harvard Business Review*, R00510, 129-137
2. Sahlman W. A. (1997). How to write a great business plan. *Harvard Business Review*, 75(4), 98-108

Assignment Due:

- **Confirm med tech / pharmaceutical / life sciences company you will be evaluating**
- **1st CASE ANALYSIS DUE (Associates: 10%; Manager: 20%)**
Case Study: Syndexa and Technology Transfer at Harvard University. Harvard Business School Case Study by Hamermesh & Kiron, May 28, 2009. 9-808-073 (course kit)

Week 5: MOBILIZING THE ENTREPRENEUR FOR SUCCESS

Topics covered:

- What are the conditions that are likely to give rise to/enable innovation and entrepreneurs in the health industry: a) among professionals, b) in teams, c) in organizations, and d) at the system level? What role might organization culture play?
- How do you develop champions for your idea?
- Why are some innovations adopted and not others? What are typical barriers to adoption?
- Who are the consumers?
- Who are other influencers in the use/administration of the technology?
- Does Canada promote and support health entrepreneurs? Examples
- Two perspectives:
 - The path to commercialization from a university / research lab setting (e.g. start up from a university)
 - The path to commercialization in a publicly traded company (e.g. IBM Watson)

Week 6: Pharmaceutical and Biotech - How they innovate and transform the health industry

Topics covered:

- The Reimbursement Environment in Canada, Pricing & Reimbursement -Who are the payers for life sciences – healthcare- med tech services and products?
- Who are the providers of services and products in the life sciences – healthcare- med tech field?
 - Pharmaceuticals and Life Sciences
 - Information Technology
 - Medical Devices
 - Healthcare
- **Clinical Development Program – What will it take?**
 - Understanding key drivers for success
 - Ensuring appropriate clinical trial designs to maximize product launch

- The role of regulatory affairs and Health Canada
- **Commercialization Plan – How do I execute?**
 - Successful Label
 - Marketing Excellence

Readings:

READING: Horbaczewski, Rothaermel. Merck (in 2009): Open for Innovation? McGraw Education. 2013. MH0009; 0077645065 (course kit)

Assignment Due:

Project –Preliminary analysis of medtech/ life sciences company chosen (please choose a new company in med tech, life sciences versus an established pharma company

For your chosen company, please take on the role of an entrepreneur who has been tasked with the job of investing in a new line of business for the company.

- **Identify company/portfolio for analysis**
- **Analyze revenues and growth trends for last 3-5 years**
- **Analyze pipeline**
- **Competitive analysis (who what when)**
- **Who are the customers?**

**** Business case will be part of the final project submission and will be expected for the idea / recommendation you will be making. Start thinking on the following as you study your chosen company**

- What are the key criteria used for assessing a business case?
- How will business case development differ in the provider domain?
- How is success measured?

Week 7: Bringing a product to market in the Pharmaceutical / life sciences/ med tech industry

GUEST LECTURER: EXPERT FROM pharma life sciences industry (Dr Leandra Wells)

Topics covered:

- Clinical Trials in Canada
- Marketing a Therapeutic Product in Canada
- Branding
- Manufacturing
- Life Cycle Management
- Cost to Compete
- KSFs in Commercialization
 - Key factors in developing a successful launch plan
 - Ensuring internal integration and buy-in for successful launch
 - Cost Pressures from Payers

- M&A in the Industry
- Post-marketing Surveillance Programs

READING DUE:

Daemmrich. A Managerial Perspective on Clinical Trials. HBR. 2008. 9-709-033 (course kit)

Assignment Due:

ASSIGN DUE: 2nd CASE ANALYSIS DUE (Associates: 10%; Manager: 20%)

- *Pisano, Weber, Szydlowski. Pfizer's Centres for Therapeutic Innovation. HBR. 2014. 9-615-024 – case (course kit)*
- Project Proposal (10% of final grade) is due by Class 7

Week 8: Providers and Technology suppliers and their role in entrepreneurship and innovation

External guest presenter: *Expert from medical technology industry e.g. Dr Mark Bergman, Senior Leader, Fresenius Kabi*

Topics covered:

- How an entrepreneurial culture has helped the med tech and life sciences industry
- Medical Devices
- Cost Pressures from Payers
- M&A in the Industry e.g. Medical devices
- Information Technology introduction and its application in the health industry

Readings:

- IMS Brogan Canadian Pharmaceutical Industry Review 2013 <http://ims.imitated-never-equalled.com/>

Week 9: TRANSFORMING THE HEALTH SYSTEM WITH TECHNOLOGY

External guest presenter: *Expert from information technology industry as pertinent to healthcare*

Topics covered

- Entrepreneurship and technology – what are your skills? What skills does your entrepreneurial venture need? How do you acquire these skills
- Role of VC, angel investors
- Emerging Medical Technologies and their impact on health care e.g. Genomics, Imaging, Artificial Intelligence, Personalized / Precision medicine
- New Technologies – current and future, ethical, legal, social implications and concerns with new technologies, Modern day molecular medicine: A disruptive innovation?
- The role of consulting in shaping the information technology/ information management agenda
- Cognitive computing – oncology as an example
- Hot topics for entrepreneurial ventures:
 - Internet of Things
 - Genomics
 - Cognitive applications

- Low cost high impact medical devices
- Social media
- Mental Health
- Wellness

Required Readings:

TO BE CONFIRMED

Assignment Due:

3rd CASE ANALYSIS (Associates: 10%; Manager: 20%)

Quench, Rodriguez. 23andMe: Genetic Testing for Consumers (A). 2014. HBR. 9-514-086 (course kit)

Week 10: HOW POLICY AND PATIENTS CAN IMPACT THE LIFE SCIENCES, MED TECH INDUSTRY

Topics covered

- Effect of policy, innovation on the entrepreneur
- New Technologies – current and future, ethical, legal, social implications and concerns with new technologies
- The role of policy making – Canadian perspective
- In class debate for a specific problem that will be provided

Read:

Realizing the Promise of Personalized Medicine. Aspinall & Hamermesh

Policy Statement, American College of Medical Genetics and Genomics (AMMG)

http://www.acmg.net/StaticContent/PPG/Clinical_Application_of_Genomic_Sequencing.pdf

Week 11: FORMAL PRESENTATIONS – PART 1

**** Questions for Final project to be answered will be provided ****

READING DUE:

- Arthaud-Day, Rothaermel, Zhang. Genentech (in 2011): After the Acquisition by Roche. McGraw Hill Education. MH0014. 0077645065. (course kit)
- http://www.acmg.net/StaticContent/PPG/Clinical_Application_of_Genomic_Sequencing.pdf

Prep:

- Questions pertaining to final project

Assignment Due:

- **Presentations**

Week 12: FORMAL PRESENTATIONS - PART 2

- Course wrap up and presentations continued

Prep:

- Questions pertaining to final project
- **Final exam due via email to ADI PAI by 5pm on April 15th, 2016, NO exceptions.**

Written Assignments/Projects: Descriptions

Please complete all papers below in 12-point font, single-spaced, and adhere strictly to page maxima. Preference is for hard copy to be handed in during class but submissions can also be emailed to Prof Cooke-Lauder.

Details for each grading component

20%: Entrepreneurial Briefing (Individual)

A template will be provided in Class 2. The template will continue to be filled out during the class and will be handed in for assessment thereafter.

30%: Mini-Assignments (3 x 10%) (Individual)

- 3 person partnerships
- 3 cases assigned
- Each person must be “Manager” of group at least once
- Grade counts twice for Manager

10%: Group Project -Preliminary analysis of medtech/ life sciences company selected

- Situational analysis of a pharma/biotech company of your choice
- Written report - Maximum 2 pages (front & back), 11pt font minimum, single spaced

10%: Group Project Presentation – Executive Pitch

- 10 minute pitch on the overview of the company, the innovation you are recommendation and business case
- Powerpoint submission

30%: Group Final Assignment – DUE 5pm via email to BOTH instructors, April 15, 2017

- Take home final
- Individual Assignment
- Maximum 20 pages, 11pt font minimum, single spaced (maximum 10 pages for appendices)

Evaluation of Written Assignments/Projects

For all evaluation, students are required to demonstrate both that they have the evidence to support their claims (veracity) as well as that they have added value by extending the analysis and using creativity (audacity). In addition, communication will be evaluated. Effective communication is key to

bringing about change and moving innovations and entrepreneurship into practice, and students will be expected to reflect that in their papers and presentations.

The relative weighting of each assignment in terms of the final grade is laid out above. In the event of late submissions, there will be a 1% penalty for each late day up to a maximum of 7 days and then the assignment will not be accepted.

Calculation of Course Grade

Assignments will be graded typically as a percentage. Each assignment has a weighting as outlined above. Final course grades will be determined by multiplying the percentages by the weight of the assignment (e.g., 10% for innovation write-up), summing them out of 100 and then translating that percentage into a letter grade as laid out below. In other words, this course will not use the grade point assessment scale. On occasion (e.g., when class-wide performance is low), higher letter grades may be assigned, but the assigned letter grades will never be lower than the grade earned according to the scale.

The course grading scheme for Master's level courses at Schulich uses a 9-value grade-point system. The possible course letter grades for a course (and the corresponding grade points awarded for each grade) are:

	Grade	Grade Points	Percentage Range	Percentage Equivalents
A+	9	9	95+	
A	8	8	85-94	
A-	7	7	80-84	
B+	6	6	77-79	
B	5	5	74-76	
B-	4	4	70-73	
C+	3	3	67-69	
C	2	2	64-66	
C-	1	1	60-63	
F	0	0		

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, elective courses are expected to have a mean grade between 5.2 and 6.2.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consults your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services. For counseling & disability services, contact Student Services or see <http://www.yorku.ca/cds/>.

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 5110 3.00

3. Course Title

a) Long Course Title

Introduction to Predictive Modelling

b) Short Course Title

4. Existing Pre-requisites/Co-Requisites

Co-requisite: MBAN 5120

5. Type of Course Change (indicate all that apply)

	in course number
	in credit value (provide course outline)
x	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
	expire course
	other (please specify)

6. Effective Session of Proposed Change(s)

Summer 2018

7. Academic Rationale

This course change is part of a larger change to the MBAN program. The existing **SB/MBAN 5110 3.00 Introduction to Predictive Modelling** will be expanded into a series of two courses, **SB/MBAN 5110 3.00, Predictive Modelling I**, and **SB/MBAN 5210 3.00, Predictive Modelling II**. In Predictive Modelling I, students will cover topics such as Decision Trees, and Logistic Regression, while in Predictive Modelling II students will cover more advanced topics such as forecasting, time-series analysis, and repeated measures. The ELOs and description for MBAN 5110 will not change as the content and outcomes of this course will remain very similar.

8. Proposed Course Information

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough

(left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change from)	Proposed Course Information (Change to)
Existing Title: Introduction to Predictive Modelling	New Title: Predictive Modelling I

9. Consultation
N/A

Originator

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook
Signature

March 27, 2017
Date

Wade Cook
Name

OMIS
Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name of Program Director

MBAN
Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl
Signature

March 27, 2017
Date

Markus Biehl
Name of Committee Chair

MPC-PCC
Committee

Course Outline

Summer 2018

Mondays, 11:30am-2:30pm
N109 SSB

Instructor

David Yeo
S337 Seymour Schulich Building (SSB)
Email: dyeo@schulich.yorku.ca
Office hours: TBA

Assistant

Paula Gowdie Rose
S337N Seymour Schulich Building
416-736-5074
pgowdierose@schulich.yorku.ca

David Yeo graduated (summa cum laude) from McMaster University with a double honors degree in psychology and sociology. His Master's degree was in Measurement, Evaluation and Computer Applications, and his doctorate was in Cognitive Science. Both graduate degrees were obtained at the University of Toronto, where David specialized in artificial intelligence and neural networks. David has worked in the artificial intelligence department at Canadian Pacific Rail, as a data miner with IBM, and for the last 15 years he has been with SAS institute (Canada) Inc., primarily as an instructor. He teaches both introductory and advanced statistics and data mining courses. David has also written several SAS courses.

Program Support will be provided by: Mark Morreale, Academic Program Manager, SAS Canada, Inc. **Mark Morreale** is an Epidemiologist with over 20 years of experience in the Canadian healthcare system. Mark is also a professor of Epidemiology and Biostatistics at McMaster University, where he lectures on Clinical Decision Support, Health Care Performance, Quality and Health Research Methodologies. Examples of his research include: Evaluation of Care Maps, ER wait times, Patient Safety and Quality of Care. Before joining SAS, Mark worked in several information management positions in the Pharma sector, Hospitals, Ontario Ministry of Health and Health Canada. In 2007-2009 Mark served as Co-Chair for the Hamilton Niagara Haldimand Brant Integrated Decision Support System-A Data Warehouse and BI resource that provides consolidated reporting and analysis for Hospitals, CCACs, and CHCs across two LHINs.

Brief Description

This course provides the tools needed to build models from data sets, validate models, and make predictions. The course emphasizes the SAS environment. Major areas for discussion include analysis of variance, regression, categorical data analysis, and predictive modelling. The course emphasizes both theory and practice, allowing students to use statistical theory for purposes of business case analysis.

Co-requisite: MBAN 5120 3.00

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance	2
Course Material	2
Class-by-Class Syllabus.....	3
Written Assignments/Projects and Exam[s]: Descriptions	5
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	6

Course Learning Outcomes

The course provides an introduction to the key statistical techniques used for data analysis and predictive modeling. As students learn techniques, they apply them to solving business cases, gaining mastery of the statistical toolkit and an appreciation for which technique to use in each situation. Upon completion of the course, the students will possess the ability to build working models for business problems and to use them to give cogent, data-driven business advice.

Organization of the Course

Pedagogy

The course combines readings in statistical theory with case exercises that provide an opportunity for application. The course builds statistical concepts in sequence, starting with ANOVA then moving into regression, categorical variable analysis, and finally, predictive modeling. The course provides sufficient statistical theory to understand the techniques but primarily emphasizes the appropriate context and method for applying the techniques.

Prior to each class, students prepare a case exercise in which they apply tools from prior lectures, and the readings, to solving a business problem. The instructor will call on students to discuss their approaches in class. Class time will also be used for discussing the statistical concepts.

Deliverables at a Glance

Course work includes one (1) assignment, two (2) midterm exams and a final exam.

Assignment/Task	Quantity	% Weight	Total %	Author
Assignment	1	20%	20%	Individual
Midterm Exam #1	1	20%	20%	Individual
Midterm Exam #2	1	20%	20%	Individual
Final exam	1	40%	40%	Individual
			100%	

For details, see “Written Assignments/Projects and Exam[s]: Descriptions” (p. 5).

Course Material

Required reading for this course includes the following book, which is available for purchase from the York University bookstore (<http://bookstore.blog.yorku.ca>):

Battersby, M. (2016). Is that a Fact?: A Field Guide to Statistical and Scientific Information, Second Edition, Broadview Press, Peterborough, Ontario. ISBN: 978-1-554812-44-8.

Additionally, a Course Kit will be provided by SAS Canada for this course.

The *Course Materials Database (CMD)* has been created within Schulich's Lotus Notes. It contains general information for Schulich students and information and materials specific to this course. Check it frequently.

Class-by-Class Syllabus

Topics, readings, and other preparations for every class are listed below

Note: If any major changes in this schedule become necessary, notifications will be posted on the course CMD. And when changes need to be announced between classes, an email will be sent to students' Lotus Notes email accounts, notifying them of the change.

DATE/WEEK	TOPIC(S) /ASSIGNED READING(S) /ASSIGNED WORK DUE
Week (1)	<p><u>Introduction, Course Requirements, and Course Overview</u></p> <p><u>Fundamental Concepts</u></p> <ul style="list-style-type: none"> • Descriptive Statistics • Picturing Distributions • Confidence Intervals for the Mean <p>Read: Chapter 1 in the Course Kit</p>
Week (2)	<p><u>Fundamental Concepts (Continued)</u></p> <ul style="list-style-type: none"> • Hypothesis Testing <p><u>Analysis of Variance</u></p> <ul style="list-style-type: none"> • One Sample T-Test • Two-Sample T-Test • One-Way ANOVA <p>Read: Chapter 2 in the Course Kit</p>
Week (3)	<p><u>Analysis of Variance (continued)</u></p> <ul style="list-style-type: none"> • ANOVA with Data from a Randomized Block Design • Post Hoc Tests • Two-Way ANOVA with Interactions <p>Read: Chapter 2 in the Course Kit</p>

DATE/WEEK	TOPIC(S) /ASSIGNED READING(S) /ASSIGNED WORK DUE
Week (4)	<u>Linear Regression</u> <ul style="list-style-type: none"> • Simple Linear Regression • Concepts of Multiple Regression • Model Building and Interpretation • Honest Assessment <p>Read: Chapter 3 in the Course Kit</p> <p>Assignment is handed out</p>
Week (5)	No Class
Week (6)	<u>Midterm Exam #1</u>
Week (7)	<u>Regression Diagnostics</u> <ul style="list-style-type: none"> • Examining Residuals • Influential Observations • Collinearity <p>Read: Chapter 4 in the Course Kit</p>
Week (8) (7)	<u>Chi-Square Analysis</u> <ul style="list-style-type: none"> • Describing Categorical Data • Tests of Association <p>Read: Chapter 5 in the Course Kit</p> <p>Assignment is due</p>
Week (9)	<u>Preparing the Input Data</u> <ul style="list-style-type: none"> • Analytical Challenges • Missing Values <p>Read: Chapter 6 in the Course Kit</p>
Week (10)	<u>Midterm Exam #2</u>
Week (11)	<u>Preparing the Input Data (continued)</u> <ul style="list-style-type: none"> • Variable Clustering • Variable Screening • Categorical Inputs

DATE/WEEK	TOPIC(S) /ASSIGNED READING(S) /ASSIGNED WORK DUE
Week (12)	<u>Logistic Regression</u> <ul style="list-style-type: none"> • Introduction to Logistic Regression • Scoring New Cases • Adjusting for Oversampling • Subset Selection <p>Read: Chapter 7 in the Course Kit</p>
Week (13)	<u>Model Assessment</u> <ul style="list-style-type: none"> • Assessing Classifier Performance • Allocation Rules • Overall Predictive Power • Model Selection Plots <p>Read: Chapter 8 in the Course Kit</p>
	<u>Final Exam</u>

Written Assignments/Projects and Exam[s]: Descriptions

Course work includes an assignment, two (2) midterm exams and a final exam.

Due Date

October 31	<u>Assignment</u> Students complete one (1) hand-in assignment over the duration of the course. The assignment will be essay, maximum 5 pages long, double spaced, and using an 11 point font. Any student submitting an improperly referenced essay will be assigned a grade of zero for that assignment, regardless of its merit. Plagiarism on either paper will result in a grade of zero for the assignment portion of the course, and possible further disciplinary action. Late Delivery Students will lose 5% of their assignment grade for every day the assignment is delayed. <i>Value: 20%</i>
October 17	<u>Midterm Exam #1</u> The midterm exam covers the material taught in the first half of the course. It takes place during class-time. <i>Value: 20%</i>
November 14	<u>Midterm Exam #2</u> The midterm exam covers the material taught in the first half of the course. It

Due Date

takes place during class-time.

Value: 20%

Please refer to the Final Exam

exam Schedule

The material for the final exam incorporates all the techniques discussed in the course. It consists of multiple choice and problem-solving questions. A scientific calculator will be required in order to answer the problem solving questions. The three-hour exam will take place at a time and place to be announced.

Value: 40%

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

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The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consult your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Student Handbook and on the Student Services & International Relations Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services. For counseling and disability services, contact Student Services or see <http://cds.info.yorku.ca/>.

Exams (Absence from)

Midterm. Students who miss a midterm examination must contact their course instructor within 24 hours and provide the course instructor with documentation substantiating the reason for the absence. A copy of the documentation must also be submitted to Student Services; it will be placed in the student's file.

Final. Within 24 hours of missing a final examination, students must contact the Director of Student Services at (416) 736-5060 and must also contact their course instructor. Formal, original documentation regarding the reason for missing the exam must be submitted to the Director of Student Services (SSB Room W262) within 48 hours of missing the final exam. Students who miss a final exam due to illness must have their doctor complete an "Attending Physician's Statement." For a copy of this document, visit <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>.

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 5120 3.00

3. Course Title

a) Long Course Title

Data Management & Programming I

b) Short Course Title

Short title of course

4. Existing Pre-requisites/Co-Requisites

Co-requisite: MBAN 5110 3.00

5. Type of Course Change (indicate all that apply)

	in course number
x	in credit value (provide course outline)
x	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
	expire course
	other (please specify)

6. Effective Session of Proposed Change(s)

Summer 2018

7. Academic Rationale

SB/MBAN 5120 1.50 Data Management & Programming I and SB/MBAN 5220 3.00 Data Management & Programming II will be combined into one course titled SB/MBAN 5120 3.00 Data Management & Programming. SB/MBAN 5220 3.00 will be retired. The existing course description and ELOs will not change as they still describe the content and aims of the course. This course is currently taught, and will continue to be taught by experts from SAS Institute. This change occurs in conjunction with the introduction of a new course, SB/MBAN 5330 3.00, Applications in Big Data. While Data Management & Programming focuses on cleaning and manipulating data using the classical techniques of SAS, SQL, and Hadoop, SB/MBAN 5330 focuses on Big Data applications such as Artificial Intelligence applications that enable data scientist to build models that would analyse data in real time.

8. Proposed Course Information

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change from)	Proposed Course Information (Change to)
<i>Existing Title: Data Management & Programming I</i> <i>Existing Credit Value: 1.5</i>	New Title: Data Management & Programming New Credit Value: 3.00

9. Consultation

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Originator

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook
Signature

March 27, 2017
Date

Wade Cook
Name

OMIS
Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name of Program Director

MBAN
Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl
Signature

March 27, 2017
Date

Markus Biehl
Name of Committee Chair

MPC-PCC
Committee

Course Outline

Winter 2015

Mondays, 2:30-5:30pm, beginning on January 11, 2016

S128 SSB

Instructor

Stephen Keelan
S337 Seymour Schulich Building
skeelan@schulich.yorku.ca
Office hours: TBA

Assistant

Paula Gowdie Rose
S337 Seymour Schulich Building
416-736-5074
pgowdierose@schulich.yorku.ca

Program Support will be provided by:
Mark Morreale, Academic Program Manager, SAS Canada, Inc.

Stephen Keelan is the Director of Education at SAS Canada, and has been an instructor with SAS since 1997. He has taught SAS Data Management courses for SAS during his tenure with SAS, and prior to that worked with SAS in Analyzing Agriculture Canada research data in a joint study with the University of Guelph.

Mark Morreale is an Epidemiologist with over 20 years of experience in the Canadian healthcare system. Mark is also a professor of Epidemiology and Biostatistics at McMaster University, where he lectures on Clinical Decision Support, Health Care Performance, Quality and Health Research Methodologies. Examples of his research include: Evaluation of Care Maps, ER wait times, Patient Safety and Quality of Care. Before joining SAS, Mark worked in several information management positions in the Pharma sector, Hospitals, Ontario Ministry of Health and Health Canada. In 2007-2009 Mark served as Co-Chair for the Hamilton Niagara Haldimand Brant Integrated Decision Support System-A Data Warehouse and BI resource that provides consolidated reporting and analysis for Hospitals, CCACs, and CHCs across two LHINs.

Brief Description

The Data Management and Programming course examines advanced techniques for manipulating data. The course emphasises the SAS environment. Major areas for discussion include controlling input and output, summarizing data, data transformations, and debugging.

Co-requisite: MBAN 5110 3.00

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance	2
Course Material	2
Class-by-Class Syllabus.....	2
Written Assignments/Projects and Exam[s]: Descriptions	5
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	6

Course Learning Outcomes

This course teaches higher-level techniques for manipulating data and introduces debugging. The course emphasizes practice over theory and allows students to experiment with each of the key data manipulation procedures. Upon completion of the course, students will possess the ability to manipulate large data sets. The course also will follow the new developments in the data management world, and will integrate new techniques and programming solutions as they become available. The course is also a requirement for the SAS Business Analyst certification.

Organization of the Course & Pedagogy

The course takes place in the computer lab. Each session of the course focuses on a chapter of the SAS Data Management and Mining manual. Students are expected to complete required readings prior to the lecture and come prepared to follow along at their workstations. Part of each class session is devoted to completing in-class exercises.

Deliverables at a Glance

Course work includes three (3) assignments, a midterm exam and a final exam:

Assignment/Task	Quantity	% Weight	Total %	Author
Assignments	3	10%	30%	Individual
Midterm Exam	1	30%	30%	Individual
Final Exam	1	40%	40%	Individual
			100%	

For details, see “Written Assignments/Projects and Exam[s]: Descriptions” (p. 5).

Course Material

Students use the SAS Data Management and Mining manual as their textbook for the course. This course manual will be provided by the instructor.

The Course Materials Database (CMD) has been created within Schulich’s Lotus Notes. It contains general information for Schulich students and information and materials specific to this course. Check it frequently.

Class-by-Class Syllabus

Topics, readings, and other preparations for every class are listed below

Note: If any changes in this schedule become necessary, notifications will be posted on the course CMD, and when changes need to be announced between classes, an email will be sent to students’ Lotus Notes email accounts, notifying them of the change.

DATE/WEEK	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
January 11 (1)	<p><u>Controlling Input and Output</u></p> <ul style="list-style-type: none"> • Outputting multiple observations • Writing to multiple SAS data sets • Selecting variables and observations • General introduction to combining SAS data sets • Appending a data set • Concatenating data sets • Merging data sets one-to-one • Merging data sets many-to-one <p>Read:</p> <ul style="list-style-type: none"> • Chapter 1 from the Course Manual • Chapter V from the Course Manual
January 18 (2)	<p><u>Summarizing Data</u></p> <ul style="list-style-type: none"> • Creating an accumulating total variables • Accumulating totals for a group of data • The Freq procedure • The Mean procedure • The Tabulate procedure <p>Read:</p> <ol style="list-style-type: none"> 1. Chapter 2 from the Course Kit 2. Chapter VI rom the Course Kit <p>Assignment #1 is handed out</p>
January 25 (3)	<p><u>Reading Raw Data Files</u></p> <ul style="list-style-type: none"> • Reading data in SAS • Using SAS as in input • Creating subsets of observations and variables • Adding permanent variables • Reading raw data files with formatted input • Controlling when a record loads • Additional techniques for list input <p>Read:</p> <ol style="list-style-type: none"> 1. Chapter 3 from the course manual
February 1 (4)	<p><u>Data Transformations</u></p> <ul style="list-style-type: none"> • Manipulating character values • Manipulating numeric values • Converting variable types

DATE/WEEK	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
	Read: 1. Chapter 4 from the course manual Assignment Due: ▪ Assignment #1
February 8 (5)	<u>Debugging Techniques</u> <ul style="list-style-type: none"> Using the PUTLOG statement Using the DEBUG option Read: 1. Chapter 5 from the course manual
February 15	Family Day – No Class
February 22 (6)	<u>Processing Data Iteratively</u> <ul style="list-style-type: none"> DO loop processing SAS array processing Using SAS arrays Read: 1. Chapter 6 from the course manual Assignment Due: ▪ Assignment #2
February 29 (7)	Midterm Exam
March 7 (8)	<u>Restructuring a Data Set</u> <ul style="list-style-type: none"> Rotating with the DATA step Using the TRANSPOSE procedure Read: 1. Chapter 7 from the course manual
March 14 (9)	<u>Other SAS Languages</u> <ul style="list-style-type: none"> General introduction to other languages Using the SQL procedure The SAS macro language Read: 1. Chapter 8 from the course manual Assignment #3 is handed out

DATE/WEEK	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
March 21 (10)	<u>The SAS SQL Procedure</u>
March 28 (11)	<u>The SAS Macro Language</u>
April 4 (12)	<p><u>Creating Graphics Using SAS/GRAPH</u></p> <ul style="list-style-type: none"> • General introduction to SAS/GRAPH • Creating bar and pie charts • Creating plots • Enhancing your output <p>Read:</p> <ol style="list-style-type: none"> 1. Chapter 9 from the course manual <p>Assignment Due:</p> <ul style="list-style-type: none"> ▪ Assignment #3

Written Assignments/Projects and Exam[s]: Descriptions

Due Date

February 1	<u>Assignments</u>
February 22	Students complete three assignments over the duration of the course. The assignments generally require students to manipulate data into a form best suited for making a particular business decision, using the toolkit learned in the course. Students must submit assignments at the beginning of class, in the form of computer printouts. Each assignment is worth 10%.
April 4	<i>Value: 3 x 10% = 30%</i>
	Late Delivery: The students will lose 5% of their assignment grade for every day an assignment is delayed.
February 29	<u>Midterm Exam</u>
	The midterm test will cover material from the first half of the course and all of the material from the predecessor course. It will take place in lab and will consist of a series of assignments to be completed in the three-hour period.
	<i>Value: 30%</i>
Please refer to the Exam Schedule	<u>Final Exam</u>
	The material for the final exam incorporates all the techniques discussed in the course. It includes problem-solving questions and short-answer questions. The three-hour exam will take place at a time and place to be announced.
	<i>Value: 40%</i>

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, sections of required core courses are normally expected to have a mean grade between 4.7 and 6.1

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, see the Student Handbook or the Student Services & International Relations website:

http://www.schulich.yorku.ca/client/schulich/schulich_lp4w_Ind_webstation.nsf/page/Enrolment+Grades+and+Convocation!OpenDocument#tabs-2

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found in the Student Handbook and on the Student Services & International Relations website:

http://www.schulich.yorku.ca/client/schulich/schulich_lp4w_Ind_webstation.nsf/page/Academic+Honesty!OpenDocument

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services.

For counseling & disability services, contact Student Services or see <http://www.yorku.ca/cds/>.

Exams (Absence from)

Midterm. Students who miss a midterm examination must contact their course instructor within 24 hours and provide the course instructor with documentation substantiating the reason for the absence. A copy of the documentation must also be submitted to Student Services; it will be placed in the student's file.

Final. Within 24 hours of missing a final examination, students must contact the Director of Student Services at (416) 736-5060 and must also contact their course instructor. Formal, original documentation regarding the reason for missing the exam must be submitted to the Director of Student Services (SSB Room W262) within 48 hours of missing the final exam. Students who miss a final exam due to illness must have their doctor complete an "Attending Physician's Statement." For more details, see:

http://schulich.yorku.ca/client/schulich/schulich_lp4w_Ind_webstation.nsf/page/Enrolment+-+MBA+Exam+Schedule?OpenDocument

Faculty of Graduate Studies

Course Change Proposal

The following information is required for all course change proposals. To facilitate the review/approval process, please use the headings below, REPLACING each <explanation> with your intended text.

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 5150 3.00

3. Course Title

a) Long Course Title

Skills for Leadership

b) Short Course Title (if a change in the course title is requested)

4. Type of Course Change (indicate all that apply)

<input type="checkbox"/>	in course number
<input type="checkbox"/>	in credit value
<input type="checkbox"/>	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
<input type="checkbox"/>	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
<input type="checkbox"/>	in integration (provide statement of approval from other program)
<input type="checkbox"/>	in cross-listing (provide statement of approval from other program)
<input type="checkbox"/>	in pre/co-requisite
<input checked="" type="checkbox"/>	expire course
<input type="checkbox"/>	other (please specify)

5. Effective Session of Proposed Change(s)

Summer 2018

6. Academic Rationale

Even though this course has been successful within the MBA Program, we found that it doesn't have the same success with the MBAN students. Instead, we propose to allow the MBAN students to take other MBA courses as electives, which would be a better fit for the needs of the students.

7. Proposed Course Information

Existing Course Information (change from)	Proposed Course Information (change to)
N/A	N/A

8. Consultation

N/A

9. Approvals

a) Originator

<u>Murat Kristal</u> Signature	<u>March 16, 2017</u> Date
-----------------------------------	-------------------------------

Murat Kristal
Name

c) Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

<u>Wade Cook</u> Signature	<u>March 27, 2017</u> Date
-------------------------------	-------------------------------

<u>Wade Cook</u> Name of Area Coordinator / Specialization Director	<u>OMIS</u> Area or Specialization
--	---------------------------------------

b) Degree Program

I have reviewed this change form and I support the proposed changes to the course.

<u>Murat Kristal</u> Signature	<u>March 16, 2017</u> Date
-----------------------------------	-------------------------------

<u>Murat Kristal</u> Name of Program Director	<u>MBAN</u> Program
--	------------------------

c) Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl

Signature

Markus Biehl

Name of Committee Chair

March 27, 2017

Date

MPC-PCC

Committee

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 5220 3.00

3. Course Title

a) Long Course Title

Data Management & Programming II

b) Short Course Title

4. Existing Pre-requisites/Co-Requisites

Prerequisite: MBAN 5120 1.50

5. Type of Course Change (indicate all that apply)

<input type="checkbox"/>	in course number
<input type="checkbox"/>	in credit value (provide course outline)
<input type="checkbox"/>	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
<input type="checkbox"/>	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
<input type="checkbox"/>	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
<input type="checkbox"/>	in integration (provide statement of approval from other program)
<input type="checkbox"/>	in cross-listing (provide statement of approval from other program)
<input type="checkbox"/>	in pre/co-requisite
<input checked="" type="checkbox"/>	expire course
<input type="checkbox"/>	other (please specify)

6. Effective Session of Proposed Change(s)

Summer 2018

7. Academic Rationale

As part of the major program change, the content of MBAN 5120 1.50 Data Management & Programming I and MBAN 5220 3.00 Data Management & Programming II will be combined into one course, MBAN 5120 3.00, which will be renamed Data Management & Programming. MBAN 5220 3.00 will therefore no longer be needed and can be retired.

8. Proposed Course Information

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change from)	Proposed Course Information (Change to)
N/A	N/A

9. Consultation

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

N/A

Originator

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name

Approvals

a) Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook
Signature

March 27, 2017
Date

Wade Cook
Name of Area Coordinator / Specialization
Director

OMIS
Area or Specialization

b) Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Faculty of Graduate Studies

Course Change Proposal

The following information is required for all course change proposals. To facilitate the review/approval process, please use the headings below, REPLACING each <explanation> with your intended text.

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 5250 1.5

3. Course Title

a) Long Course Title

Analytics Consulting

b) Short Course Title (if a change in the course title is requested)

4. Type of Course Change (indicate all that apply)

	in course number
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
X	expire course
	other (please specify)

5. Effective Session of Proposed Change(s)

Summer 2018

6. Academic Rationale

We propose to remove the MBAN 5250 Analytics Consulting from the curriculum. This course was originally introduced to provide insights about how consulting projects are run to our MBAN students. However, we started covering most of the topics in the Big Data Workshop and our students are getting first hand consulting experience in the new MBAN 6090 course.

7. Proposed Course Information

Existing Course Information (change from)	Proposed Course Information (change to)
N/A	N/A

8. Consultation

Please see attached e-mails.

9. Approvals

Originator

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name

Approvals

a) Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook
Signature

March 27, 2017
Date

Wade Cook
Name of Area Coordinator / Specialization
Director

OMIS
Area or Specialization

b) Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name of Program Director

MBAN
Program

c) Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl	March 27, 2017
_____ Signature	_____ Date
Markus Biehl	MPC-PCC
_____ Name of Committee Chair	_____ Committee

Faculty of Graduate Studies

Course Change Proposal

The following information is required for all course change proposals. To facilitate the review/approval process, please use the headings below, REPLACING each <explanation> with your intended text.

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 6090 9.00

3. Course Title

a) Long Course Title

Major Research Project

b) Short Course Title (if a change in the course title is requested)

4. Type of Course Change (indicate all that apply)

	in course number
X	in credit value
x	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
X	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
	expire course
	other (please specify)

5. Effective Session of Proposed Change(s)

Summer 2018

6. Academic Rationale

Another major change in the program is the restructuring of the existing Major Research Project MBAN 6090 9.00. Currently, this course runs as a capstone course in the summer term. The new version would stretch the course (as a 6.00 credit version) over terms 2 and 3, similar to the MRP in the MBA and IMBA programs. This would allow students to do more substantial work as it often takes time to collect and clean data. It also allows us to expand the number of courses in order to complement the capabilities offered through the current version of the program. Even though, we are changing this course from a placement to a community-involved service project, the new version still will retain the experiential nature of the course as well as students' exposure to the analytics industry. As students will be working in groups of 4 on a project as opposed to working full time, the amount of time that students will spend in this course will decrease. The credit value has therefore been changed to reflect this reduction. The new title is more descriptive of the nature of the work students will perform and the new course description will reflect the logistical changes.

7. Proposed Course Information

Existing Course Information (change from)	Proposed Course Information (change to)
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<p>Existing Title: Major Research Project</p> <p>Existing Credit Value: 9.00</p> <p>Existing Description:</p> <p>The MRP is the capstone, integrative course of the MBAN program. It will allow students to deepen their understanding of the subject matter and methodologies, as well as provide an opportunity for hands-on, problem-driven research. Normally, students spend a minimum of 12 weeks working for a company, government agency or the administration of an educational institution on a business analytics project. With the approval of the program director students may also conduct a similar project within the faculty, using secondary data sources. At the conclusion of the MRP students submit and present their final work to a panel of at least two experts, including the program director.</p>	<p>New Title: Analytics Consulting Project</p> <p>New Credit Value: 6.00</p> <p>New Description:</p> <p>The Analytics Consulting Project is the capstone integrative course of the MBAN program. It will allow students to deepen their understanding of the subject matter and methodologies, as well as provide an opportunity for hands-on, problem-driven research and application. It is an intensive, 8 month project where groups of 4 MBAN students undertake a comprehensive analytics project of an organization (“client site”) and provide business insights to enhance the site’s future success. At the conclusion of the analytics consulting project students submit and present their final work to a panel of at least two experts, including the course director, and also to the client site.</p>
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8. Consultation

N/A

Course Originator

Murat Kristal
Signature

March 16th, 2017
Date

Murat Kristal
Name

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook	March 27, 2017
_____ Signature	_____ Date

Wade Cook	OMIS
_____ Name	_____ Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

<i>Murat Kristal</i>	<i>March 16, 2017</i>
_____ Signature	_____ Date

Murat Kristal	MBAN
_____ Name of Program Director	_____ Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl	March 27, 2017
_____ Signature	_____ Date

Markus Biehl	MPC-PCC
_____ Name of Committee Chair	_____ Committee

Fall 2018 & Winter 2019

Instructor

Murat Kristal
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Email: mkristal@schulich.yorku.ca
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Assistant

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Professor Kristal, PhD (North Carolina), is the Program Director of the *Masters of Business Analytics (MBAN)* program and an Associate Professor of Operations Management and Information Systems. His research focuses on the areas of supply chain and operations management. Recent research projects include resource allocation in manufacturing firms, sustainable manufacturing, how supply chains adapt in order to survive in competitive environments, and how mass customization capability can be developed through organizational learning and knowledge management.

Course Description

The Analytics Consulting Project is the capstone integrative course of the MBAN program. It will allow students to deepen their understanding of the subject matter and methodologies, as well as provide an opportunity for hands-on, problem-driven research and application. It is an intensive, 2 term project where groups of 4 MBAN students undertake a comprehensive analytics project of an organization (“client site”) and provide business insights to enhance the site’s future success. At the conclusion of the analytics consulting project students submit and present their final work to a panel of at least two experts, including the course director, and also to the client site.

How the Course Works

Successful completion of this project requires several key steps, outlined below and detailed throughout the course outline.

Students must form into groups of 4 and have their groups confirmed by the end of the first term. Schulich will provide the company of study to the groups. If you have found a company that you would like to study, please submit the company’s name and a company contact person to me for approval by the end of the first term. The organization must be an on-going business, a non-profit, a start-up, or a community organization. From September through April, each group will engage in an analytics project that will be negotiated between the student group, the organization’s management, and me, and formalized in a document called the “Statement of Work”.

Student groups are expected to meet with me every other week on a regular basis. The objective of the status update meetings is to provide a comprehensive update on where you are at vis-a-vis completing the project on time at the end of the third term. To have a successful status update meeting, the group

will need to do a review of what was started at the beginning of the project, describe what has changed since the beginning of the project, and update me on the status of the group’s research.

The groups are expected to deliver the following milestones regarding the project:

Milestone 1: Understanding the business process and identification of the analytics problem solved by the group.

Milestone 2: Identification of variables associated with the analytics problem and outlining the details of the ETL (Extract Transform and Load) Process.

Milestone 3: A detailed overview of the methodologies that will be used in order to solve the business problem.

Milestone 4: Initial analysis results, and discussion on what needs to be done in order to finalize the project.

Milestone 5: Final delivery of the project.

At the end of the third term, each group will present their final report (20 minutes) and be prepared to answer questions (for up to another 40 minutes). Groups will also submit their final report, of no more than 40 pages, double-spaced, using 12 pt. type. The expectations for what is required in the final report are provided in a document that is attached. Importantly, there is no marking grid per se, as each organization will demand a different approach and therefore a different grading scheme.

Prerequisites/Corequisites/Course Exclusions: This is the capstone course that spans the last two terms of the MBAN program. Students are expected to successfully complete all course work in order to be eligible for graduation.

Contents

Course Learning Outcomes..... 3

Evaluation..... 3

Course Material 3

Expectations of Students in the Course 4

Class-by-Class Syllabus 4

Assignments..... 6

Evaluation of Assignments..... 8

Calculation of Course Grade 8

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams 8

Quick Reference: Summary of Activities and Deliverables..... 9

Course Learning Outcomes

Upon completion of the ACP, students will be able to distil large quantities of data in a clear and concise manner to support decision-making. They will gain a keen understanding of the constraints and opportunities for leveraging business analytics within the context of a real organization or situation.

Furthermore, students will gain a conceptual understanding and methodological competence of:

- established techniques of business analytics which are used to create and interpret knowledge in various business environments;
- the treatment of complex issues and judgments using quantitative methodologies;
- value creation for organizations using business analytics as a key measurement of performance and organizational planning.

The ACP experience will also hone the qualities and transferable skills necessary for employment, including:

- the exercise of initiative and of personal responsibility and accountability;
- the intellectual independence required for continuing professional development;
- the ability to appreciate the broader implications of business analytics to particular contexts; and
- the ability to communicate complex and/ or ambiguous ideas, issues and conclusions clearly.

Evaluation

In the table below, the impact of each task on your final grade for the course is indicated in the “% weight” column. Details shown below.

Assignment/Task	Quantity	% Weight	Total %
Milestone 1 (Proposal)	1	10%	10%
Milestone 2 (ETL)	1	10%	20%
Milestone 3 (Methodology)	1	15%	35%
Milestone 4 (Initial Results)	1	15%	50%
Final Presentation	1	25%	75%
Final Report	1	25%	100%

Please note that the focus on group work is meant to reflect the nature of how work is done in many firms wherein people regularly form teams to work on key issues. The best time to deal with discord within a group is when it appears, rather than when the final project is due. If team members experience disagreement that they cannot resolve themselves, they should speak with me about it.

To ensure that the team members each deliver on their commitments to the project, a formal peer evaluation process will be used throughout the projects and discussed at each of the milestone meetings. A peer grade allocation process will be used to assess the contributions of individual members to the team. Criteria for the peer evaluation include attendance and participation at team meetings; preparation for meetings; cooperativeness in getting work done; time and effort put into the

project; timeliness and quality of the work; use of interpersonal and group dynamic skills, and any other elements of teamwork.

Please take this very seriously, because I do. I will consider this input in assigning the final grade. The grade allocation form is attached and must be submitted, signed by all team members before the final presentation begins. If the document cannot be agreed upon by all group members, the final meeting will be rescheduled at my convenience.

Course Material

Required Readings:

There are no required readings for this course, but there is a reading list that is highly recommended, especially in light of the fact that your group may not have much experience in the areas of consulting, or market research. Further there are some readings on making excellent presentations that should be thoroughly examined.

- 1) HBR Case: When Consultants and Clients Clash. Harvard Business School Press Reprint 97605X
- 2) Market Research: Listen & Learn. **Product #:** 2750BC-PDF-ENG, Harvard Business School Press
- 3) Why the Lean Start Up Changes Everything. Reprint R1305C, Harvard Business School Press
- 4) Market Research Toolbox Chapter 9 and 10 by Ed Mcquarrie
- 5) "How to Pitch a Brilliant Idea" Elsbach, K. HBR September 2003
- 6) "Presenting to Win "The Art of Telling Your Story"" Weissman, J. Pages XXIX-XLII, 3-25
- 7) "Pitfalls in Meetings and How to Avoid Them" Edward Prewitt **Product #**U9806D-PDF-ENG HBS Press

Links to the readings will be posted on the York University Library web site. To access this site, go to www.library.yorku.ca and click on Course Reserve Material, then enter the course number.

Course Materials Database (CMD):

A Course Materials Database ('CMD') has been created for this course within Lotus Notes. Every CMD includes some important general information for Schulich students. I post rubrics, resources and special instructions on assignments on the CMD. Please get into the habit of checking the CMD on a regular basis. Feel free to e-mail me with questions or concerns throughout the term.

Expectations of Students in the Course

Classes: This course has 6 formal classroom sessions. First class will be held in the beginning of the Winter Term, where I will introduce you to the course and take you through the deliverables and timetable for completion. We will also discuss the scoping process, the research process, and the importance of confidentiality. Course procedures and grading guidelines will also be discussed. You will also choose the specific dates and times for your milestone meetings with me. This class is mandatory for all students in the course.

The second formal session will occur during week 3 of the Fall Term, when we will meet as a full group. This session is also the first deliverable (Milestone 1) of the course, in which you will present a proposal outlining the scope of your project. You will be asked to make a presentation with no more than 10 slides that outlines the company, the business problem and the expected outcomes of the project. The presentation in this meeting is worth 12.5% of your total grade.

The third formal session will occur either the week before or after Fall Reading Week. In this meeting, the groups will present their data sources and how they will conduct the ETL process (Milestone 2) for the analytics project. The presentation in this meeting is worth 12.5% of your total grade.

The fourth formal session (Milestone 3) will occur in the last week of the Fall Term. In this session, you will present a detailed outline of the methodologies that you will follow to analyze your data. The presentation in this meeting is worth 12.5% of your total grade.

The fifth formal session (Milestone 4) will occur either the week before or after the Winter Reading Week. In this meeting, the groups will present the initial results of their analysis of the data. The presentation in this meeting is worth 12.5% of your total grade.

At the end of the Winter Term, at the sixth formal session, the groups will deliver their Final Presentation to me and to the representatives of the organizations that they are working for. The presentation in this meeting is worth 25% of your total grade.

Initiative and Communication: Because this course has few scheduled classes, it is critical that each team manages their workload and takes initiative to develop and complete the project plan. Providing a good solid project report to the client not only increases your learning and career prospects, but also increases Schulich’s reputation among the employer community. While there are six formal assessment points for your progress, you are encouraged to make an appointment with me if you are facing any challenges with data collection, your client, your analysis or the working relationships within your group.

Presentations: All the team members are required to be present in all formal sessions. Failing to attend the formal presentations will lead to 10% reduction in your final grade.

Note: If any changes in this schedule become necessary, notifications will be posted on the course CMD, and when changes need to be announced between classes, an email will be sent to students’ Lotus Notes email accounts, notifying them of the change.

Week to Week Course Schedule

Fall 2018

Activity	Date
Formal Class Room Session 1	Week 1
Groups Confirmed	Week 1

Milestone 1	Week 3
Milestone 2	Week 6 or 7
Milestone 3	Week 13
<u>Winter 2019</u>	
Milestone 4	Week 6 or 7
Milestone 5	Week 13

Assignments

Performance in this course will be evaluated based on five assignments: The Project Plan or the Proposal, the Presentation on the ETL Process, the Methodology Paper and Presentation, Initial Analysis Report and Presentation, and Final Report and Presentation. A more detailed description of the assignments follows. Rubrics for the written assignments will be posted on the course website.

Submission Instructions: For the written assignments, please complete all written reports in no less than 12-point font. Please submit hard copies of your reports and final documents to me at the presentation meetings.

Please submit your documents in this format: [XYZ Inc.PP] for the project plan, and similarly for the Status report (XYZ Inc.SR) and Final report (XYZ Inc.FR). Please also make sure you include your names and student numbers on the front of the document itself. **All late submissions will lose 5% of the final grade per day. Assignments that are more than one week overdue will not be accepted, and will be assigned a grade of zero.**

The Project Plan or Proposal will be a preliminary assessment of the company's competitive position in its industry, and a project plan for addressing the specific analytics problem the company faces, delivered to your academic project supervisor as a presentation with an accompanying report. This will be worth 12.5% of the course grade, and it will be due on third week of the Winter Term. You will also have to show evidence that the company has signed off on your project plan.

The ETL Report (Milestone 2). Over the following 3 or 4 weeks, students will conduct primary research on the available data sets within the organization and how these data sets will be extracted from the organization. The students might have to help the organization with SQL coding or providing them with SFTP processes. This will be worth 10% of the course grade, and should be delivered as a presentation.

The Methodology Presentation and Report (Milestone 3). Based on the analysis of the analytics problem the team will present a detailed report on how to analyze the data, the assumptions of the analyses methodology and the appropriateness of the chosen methodology for the analytics problem. The presentation will be accompanied with a written report of no more than 15 double-spaced pages plus appendices. Importantly, teams must present this report to me in a 20 minute presentation. This will be worth 15% of your grade.

The Initial Results Presentation and Report (Milestone 4). In this stage, you will share your initial results with me and the organization that you are working for. As a result, your presentation and the accompanying report must be succinct and written in a way that can be understood by the client site. The presentation will be accompanied with a written report of no more than 15 double-spaced pages plus appendices. This will be worth 15% of your grade.

The Final Presentation and Report. In the final month of the Spring Term, students will complete any remaining research and write up the results of their study, incorporating all feedback they have received. They will make recommendations to address the company's issue for this project, as well as for any ways of solving the company's analytics problem. The presentation and the report will be worth 50% of the course grade, and it will be due on the last week of the Spring Term. The written report will be no more than 20 double-spaced pages, plus appendices. Importantly, teams must present this report to me in a 20 minute presentation and the client site.

Evaluation of Assignments

Rubrics for each assignment are attached and will be posted on the CMD by the beginning of the Fall Term.

Calculation of Course Grade

In this class, final course grades will be determined by the following process: Each assignment will receive a grade. These will be combined according to the weightings assigned to each assignment to give a final grade. Grades may be rounded up or down depending on the final class distribution.

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, sections of required core courses are normally expected to have a mean grade between 4.7 and 6.1.

Letter Grade (Schulich)	Index System (Schulich)	Approximate Percentage Range
A+	9	87-100
A	8	84-86
A-	7	80-83
B+	6	77-79
B	5	74-76
B-	4	70-73
C+	3	67-69

C	2	64-66
C-	1	60-63
F	0	< 60

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consult your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services. For counseling and disability services, contact Student Services or see <http://cds.info.yorku.ca/>.

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 6110 3.00

3. Course Title

a) Long Course Title

Data Science I

b) Short Course Title

Short title of course

4. Existing Pre-requisites/Co-Requisites

None.

5. Type of Course Change (indicate all that apply)

	in course number
	in credit value (provide course outline)
X	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
	in integration (provide statement of approval from other program)
	in cross-listing (provide statement of approval from other program)
	in pre/co-requisite
	expire course
	other (please specify)

6. Effective Session of Proposed Change(s)

Summer 2018

7. Academic Rationale

The MBAN Advisory Board believes that the course title should be more descriptive of what is taught in the course to help recruiters make informed decisions while hiring our students. The renamed course will become a core rather than an elective course.

8. Proposed Course Information

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change from)	Proposed Course Information (Change to)
Existing Course Title: Data Science I	New Course Title: Machine Learning I

9. Consultation

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Originator

Murat Kristal

Signature

March 16, 2017

Date

Murat Kristal

Name

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook

Signature

March 27, 2017

Date

Wade Cook

Name

OMIS

Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name of Program Director

MBAN
Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl
Signature

March 27, 2017
Date

Markus Biehl
Name of Committee Chair

MPC-PCC
Committee

Course Outline Fall 2018

Thursdays, 11:30am-2:30pm

Instructor

Michael Chen
S337 Seymour Schulich Building
Tel: 416-736-2100 ext. 22591
Email: chensy@schulich.yorku.ca
Office hours: TBD

Assistant

Paula Gowdie Rose
S337N SSB
416-736-5074
pgowdierose@schulich.yorku.ca

Professor Michael Chen is a full time faculty member with the Mathematics and Statistics department in the Faculty of Science at York University. He conducts research in the following areas: large scale optimization, stochastic optimization, advanced big data analytics, and algorithms for business application.

Brief Description

This course is an introduction to machine learning techniques designed for students who will work with data scientists or as data scientists, manage data mining projects, or invest in related ventures. The course introduces fundamental concepts and techniques for the analysis of data-centered business problems, the creation and evaluation of solutions, the data science strategies, the basic cycle of a data-mining project, and the integration into business strategies.

Eligibility: MBAN students only.

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance.....	2
Course Material.....	2
Student Preparation for Class and Class Participation: Expectations.....	2
Written Assignments/Projects and Exam[s]: Descriptions	6
Evaluation of Written Assignments/Projects and Exams	6
Calculation of Course Grade	6
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	7
Quick Reference: Summary of Classes, Activities and Deliverables	8

Course Learning Outcomes

Companies such as Amazon and Netflix have been using the techniques introduced in this class for more than a decade. The course will introduce students to the values of the data and the analytics capacity of a business, the concepts of most important data mining algorithms, fundamental methodologies of evaluating models, and the relationship between data science and business strategy. In today's competitive world, decision making in real time is an important competitive advantage. The data mining algorithms taught in this class will help students to bridge the gap between decision making analysis and real time recommendation models.

Deliverables at a Glance

In the table below, the impact of each task on your final grade for the course is indicated in the “% weight” column.

Assignment/Task	Quantity	% Weight	Total %
Assignment I	3	5	15
Midterm	1	40	40
Final exam	1	40	40
Class participation	ongoing	5	5
			100%

Course Material

Required reading for this course includes the following book. It contains all of the information students will need to complete the assignments and projects, and is available for purchase from the York University Bookstore (<http://bookstore.yorku.ca>):

Provost and Fawcett (“PF” below). Data Science for Business: Fundamental Principles of Data Mining and Data Analytic Thinking, 2013.

Reserved readings at the library have been selected from periodicals and journals. Go to <http://www.library.yorku.ca>, click on the “Reserves” tab and type in “6110” to access these readings.

The *Course Materials Database (CMD)* has been created within Schulich’s Lotus Notes. It contains general information for Schulich students and information and materials specific to this course. Check it frequently.

Student Preparation for Class and Class Participation: Expectations

Class preparation. Students are expected to prepare for each class according to the instructions indicated in the class-by-class syllabus.

Class Participation (contribution). It is expected that students attend all sessions of this intensive course. Class discussion focuses around that week's assignment. Students have an opportunity to ask questions to the lecturer, to share their own experiences using similar techniques, and to discuss different approaches to the problem. A student's grade for class participation reflects both the quantity and quality of the student's comments.

Class-by-Class Syllabus

DATE/WEEK	TOPIC(S) / ASSIGNED READING(S) / ASSIGNED WORK DUE
September 15 (1)	<p><u>Introduction to Data science</u></p> <p>Guest Speaker: Ian Khan, Director, Marketing and Innovation, Solgeniakhela 11:30am-12:30pm</p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> Please make an on-line search on how the recommendation engines of Amazon and Netflix works <p><u>Read:</u></p> <ul style="list-style-type: none"> PF. Ch. 1: Data-Analytic Thinking PF. Ch. 2: Business Problems and Data Science Solutions
September 22 (2)	<p><u>Supervised learning: tree segmentation</u></p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> Review definition of statistical correlation and understand the difference between association and prediction Review the concept of supervised segmentation <p><u>Read:</u></p> <ul style="list-style-type: none"> Ch. 3: Introduction to Predictive Modelling: From Correlation to Supervised Segmentation
September 29 (3)	<p><u>Supervised learning: linear regression and logistic regression</u></p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> Review linear equations and matrix calculus <p><u>Read:</u></p> <ul style="list-style-type: none"> Ch. 4: Fitting a Model to Data (before support vector machine)
October 6 (4)	<p><u>Supervised learning: support vector machine</u></p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> Review what is an optimization problem; what is an objective function, the constraints, the feasible set, and the optimal set. What are the considerations when building an optimization problem? <p><u>Read:</u></p> <ul style="list-style-type: none"> Ch. 4: Fitting a Model to Data (the vector machine)

DATE/WEEK	TOPIC(S) / ASSIGNED READING(S) / ASSIGNED WORK DUE
	<u>Assignment:</u> <ul style="list-style-type: none"> ▪ Assignment 1 handed out
October 13 (5)	<u>Overfitting</u> <u>Prep:</u> <ul style="list-style-type: none"> ▪ Review likelihood optimization and stochastic process ▪ Review chi-square tables and cross-validation <u>Read:</u> <ul style="list-style-type: none"> ▪ Ch. 5: Overfitting and its avoidance
October 20 (6)	<u>Unsupervised learning: similarity, neighbors and clusters</u> <u>Prep:</u> <ul style="list-style-type: none"> ▪ Understanding the basics of cluster analysis in the context of neighborhood optimization <u>Read:</u> <ol style="list-style-type: none"> 1. Ch. 6: Similarity, Neighbors, and Clusters
October 27	<i>No Class – Reading Week (October 25-28)</i>
November 3 (7)	<u>MIDTERM EXAM</u>
November 10 (8)	<u>Evaluation metrics and expected value framework</u> Guest Speaker: Clement Chung, Lead Data Scientist, Rubicon Text mining, techniques and applications 11:30am - 2:30pm <u>Prep:</u> <ul style="list-style-type: none"> ▪ Before coming to class, please consider what is desired from data science analysis results ▪ Search for applications of expected value calculations in various industries ▪ Think about the importance of creating strong baseline models. <u>Read:</u> <ul style="list-style-type: none"> ▪ Ch. 7: Decision Analytic Thinking: What Is a Good Model? <u>Assignment Due:</u> <ul style="list-style-type: none"> ▪ Assignment 1 due ▪ Assignment 2 handed out
November 17 (9)	<u>Text mining</u>

DATE/WEEK	TOPIC(S) / ASSIGNED READING(S) / ASSIGNED WORK DUE
	<p><u>Prep:</u></p> <ul style="list-style-type: none"> ▪ The importance of constructing mining-friendly data representations; ▪ How do we prepare manuscripts for data mining? ▪ Exemplary techniques: Bag of words representation; TFIDF calculation; N-grams; Stemming; Named entity extraction; Topic models. <p><u>Case Study</u></p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> ▪ Think about the examples of analytical engineering. Solving business problems with data science starts with analytical engineering: designing an analytical solution, based on the data, tools, and techniques available. <p><u>Read:</u></p> <ul style="list-style-type: none"> ▪ Ch. 10: Representing and Mining Text ▪ Ch. 11: Decision Analytic Thinking II: Toward Analytical Engineering
<p>November 24 (10)</p>	<p><u>Bayes classification part I</u></p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> ▪ What is Bayes' Rule and what are the examples of Bayes' Rule in our daily lives? ▪ How do we use Probabilistic reasoning via assumptions of conditional independence in business settings? <p><u>Read:</u></p> <p>Ch. 9: Evidence and Probability (Advantages and Disadvantages of Naïve Bayes Updates)</p>
<p>December 1 (11)</p>	<p><u>Bayes classification part II</u></p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> ▪ Review the Bayes rule <p><u>Read:</u></p> <ul style="list-style-type: none"> ▪ Ch. 9: Evidence and Probability (start from "Advantages and Disadvantages of Naïve Bayes" till the end of the chapter) <p><u>Assignment Due:</u></p> <ul style="list-style-type: none"> ▪ Assignment 2 due ▪ Assignment 3 handed out
<p>December 8 (12)</p>	<p><u>Visualizing model performance</u></p> <p><u>Prep:</u></p> <ul style="list-style-type: none"> ▪ Fundamental concepts: Visualization of model performance under various kinds of uncertainty ▪ Further consideration of what is desired from data mining results. <p><u>Read:</u></p> <p>Ch. 8: Visualizing Model Performance</p>

DATE/WEEK	TOPIC(S) / ASSIGNED READING(S) / ASSIGNED WORK DUE
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Assignment Due:

- Assignment 3 due

Written Assignments/Projects and Exam[s]: Descriptions

Assignments (15%) Each assignment requires the student to answer a set of questions closely related to the textbook contents or to conduct numerical experiments (i.e. what if analysis). All of the information students need to complete an assignment is included in the textbook and in prior lectures. Assignments must be submitted at the beginning of class on the due date. *Note: Assignment #1 will be graded before the course drop deadline.*

Midterm Test (40%) The midterm test will cover material from the first half of the course. It will take place in lab and will consist of a series of problems to be completed in the three-hour period.

Final Exam (40%) The material for the final exam incorporates all of the techniques discussed in the course. It includes problem-solving questions and short-answer questions. The three-hour exam will take place at a time and place that will be announced by the Associate Dean, Academic.

Evaluation of Written Assignments/Projects and Exams

As the course focuses on analytical skills, the evaluation of assignments and exams is based on objective criteria. Grades are based on how many problems are correctly solved. Students are required to show major analytical steps which lead to the solution of the assigned problems. Partially solved questions may receive credits, which is at the sole discretion of the instructor. See previous section for contribution of each individual component to overall grade.

Late Delivery: Students will lose 5% of their assignment grade for every day the assignment is delayed.

Calculation of Course Grade

The instructor will assign numerical mark to each assignment or test. Each component will be multiplied by its weight, and then a letter grade for the course is assigned according to the following table:

A+	[100% - 90%]
A	[89% - 80%]
A-	[79% - 70%]
B+	[69% - 60%]
B	[59% - 50%]
B-	[49% - 40%]
C+	[39% - 30%]
C	[29% - 20%]
C-	[19% - 10%]
F	[9% - 0%]

Note that letter grade “A” corresponds to the interval from 89% to 80%.

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, elective courses are expected to have a mean grade between 5.2 and 6.2.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consult your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University’s policy on academic honesty, which may be found on the Student Handbook and on the Student Services & International Relations Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services. For counseling and disability services, contact Student Services or see <http://cds.info.yorku.ca/>.

Exams (Absence from)

Midterm. Students who miss a midterm examination must contact their course instructor within 24 hours and provide the course instructor with documentation substantiating the reason for the absence. A copy of the documentation must also be submitted to Student Services; it will be placed in the student’s file.

Final. Within 24 hours of missing a final examination, students must contact the Director of Student Services, at (416) 736-5060 and must also contact their course instructor. Formal, original documentation regarding the reason for missing the exam must be submitted to the Director of Student Services, (SSB Room W262) within 48 hours of missing the final exam. Students who miss a final exam due to illness must have their doctor complete an “Attending Physician’s Statement.” For a copy of this document, visit <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>.

Quick Reference: Summary of Classes, Activities and Deliverables

Class No., Title and Date	Reading Preparation (excluding cases and optional readings)	Assigned Work Due
1. September 15 Introduction to Data science	PF. Ch. 1, 2	
2. September 22 Supervised learning: tree segmentation	PF. Ch. 3	
3. September 29 Supervised learning: linear regression, logistic regression (Ch. 4)	Review linear equations and matrix calculus	
4. October 6 Supervised learning: support vector machine (Ch. 4)	Review what is an optimization problem; what is an objective function, the constraints, the feasible set, and the optimal set	
5. October 13 Overfitting (Ch. 5)	Review likelihood optimization	
6. October 20 Unsupervised learning: similarity, neighbors, and clusters (Ch. 6)	Review the definitions of 2-norm and 1-norm	
October 27	No Class – Reading Week (October 25-28)	
7. November 3	Midterm Exam	
8. November 10 Evaluation metrics and expected value framework (Ch. 7)	Review the elementary statistics, including the definition of the expectation	Assignment 1
9. November 17 Visualizing model performance (Ch. 8)	Review regression models and support vector machine	
10. November 24 Bayes Classification part I (Ch. 9)	Review the definition of the conditional probability	
11. December 1 Bayes Classification part II (Ch. 9)	Review the Bayes rule	Assignment 2
12. December 8 Text mining (Ch. 10) Two Cases (Ch. 11)	Review the definition of entropy; Review the definition of p-norm for p=1, 2, and infinity Review the expected value framework from Ch. 7	Assignment 3
FINAL EXAM – Please refer to exam schedule		

Course Change Proposal Template

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Schulich Master of Business Analytics (MBAN)

2. Course Number and Credit Value

MBAN 6120 3.00

3. Course Title

a) Long Course Title

Data Science II

b) Short Course Title

Short title of course

4. Existing Pre-requisites/Co-Requisites

MBAN 6110 3.00

5. Type of Course Change (indicate all that apply)

<input type="checkbox"/>	in course number
<input type="checkbox"/>	in credit value (provide course outline)
<input checked="" type="checkbox"/>	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
<input checked="" type="checkbox"/>	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
<input type="checkbox"/>	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
<input type="checkbox"/>	in integration (provide statement of approval from other program)
<input type="checkbox"/>	in cross-listing (provide statement of approval from other program)
<input type="checkbox"/>	in pre/co-requisite
<input type="checkbox"/>	expire course
<input type="checkbox"/>	other (please specify)

6. Effective Session of Proposed Change(s)

Summer 2018

7. Academic Rationale

The MBAN Advisory Board believes that the course title should be more descriptive of what is taught in the course to help recruiters make informed decisions while hiring our students. The renamed course will become a core rather than an elective course.

8. Proposed Course Information

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change from)	Proposed Course Information (Change to)
<p>Existing Course Title: Data Science II</p> <p>Existing Course Description:</p> <p>This is a follow up course to Data Science I and covers advanced topics such as Unix command line tools, Python programming language, Web APIs, Hadoop and MapReduce, and other important computing tools for a big data project. Classical cases, including Netflix recommendation system and online-targeted display advertising will be analysed in depth.</p>	<p>New Course Title: Machine Learning II</p> <p>New Course Description:</p> <p>This course is designed for business students who will pursue a career in the related industries. The course first teaches students Unix command line and Python programming language, which constitute the uniform computing environment for the following topics: data visualization; predictive modelling; relational database and SQL; Web APIs; big data, Hadoop and MapReduce; and Stochastic Search and Optimization methods. Towards the end of the course, various business cases from data science are introduced; examples may include: (i) online recommender systems; and (ii) Online targeted display advertising. Through in-class labs, the course gives students hands-on experience of advanced data science techniques. Students are required to bring own laptop to participate these in-class labs.</p>

9. Consultation

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Originator

Murat Kristal
Signature

March 16, 2017
Date

Murat Kristal
Name

Approvals:

Area or Specialization

I have reviewed this change form and I support the proposed changes to the course.

Wade Cook _____ Signature	March 27, 2017 _____ Date
Wade Cook _____ Name	OMIS _____ Area or Specialization

Degree Program

I have reviewed this change form and I support the proposed changes to the course.

<i>Murat Kristal</i> _____ Signature	<i>March 16, 2017</i> _____ Date
Murat Kristal _____ Name of Program Director	MBAN _____ Program

Program Committee

This course change has received the approval of the relevant Program Committee.

Markus Biehl _____ Signature	March 27, 2017 _____ Date
Markus Biehl _____ Name of Committee Chair	MPC-PCC _____ Committee

Course Outline

Winter 2019

Wednesdays, 11:30 am – 2:30pm, N105 SSB

Instructor

Marek Laskowski
S337 Seymour Schulich Building (SSB)
Email: mlaskowski@schulich.yorku.ca
Office hours: TBD

Assistant

Paula Gowdie Rose
S337N SSB
416-736-5074
pgowdierose@schulich.yorku.ca

Marek Laskowski conducts research in the following areas: modelling of complex systems, machine learning, Blockchain and Distributed Ledger Technology (DLT) applications.

Brief Description

This course is designed for business students who will pursue a career in the related industries. The course first teaches students Unix command line and Python programming language, which constitute the uniform computing environment for the following topics: data visualization; predictive modelling; relational database and SQL; Web APIs; big data, Hadoop and MapReduce; and Stochastic Search and Optimization methods. Towards the end of the course, various business cases from data science are introduced; examples may include: (i) online recommender systems; and (ii) Online targeted display advertising. Through in-class labs, the course gives students hands-on experience of advanced data science techniques. Students are required to bring own laptop to participate these in-class labs.

Pre-requisites: MBAN 6110

Contents

Course Learning Outcomes.....	2
Deliverables at a Glance.....	2
Course Material.....	2
Student Preparation for Class and Class Participation: Expectations.....	3
Class-by-Class Syllabus.....	3
Written Assignments/Projects and Exam[s]: Descriptions	6
General Academic Policies: Grading, Academic Honesty, Accommodations and Exams	7

Course Learning Outcomes

The Data Science II course prepares students for real working environments. Students who complete this course will be able to represent and retrieve data from text files, relational databases, the web, and the distributed file system Hadoop; clean and transform data using the powerful regular expression and Hadoop steaming function; visualizing data; and conduct deep data analysis using Python. Through lectures and homework questions, students will be exposed to a variety of data science cases, including big data exploration, enhanced 360 degree view of customers, security intelligence extension, operations analysis and data warehouse modernization. In particular, students will study in depth the online recommender systems and the targeted display advertising. With fundamental concepts and algorithms learned from Data Science I, powerful big data software tools, and rich exposure to top data science systems around the world learned from this course, students will be able to work on a real life data science project.

Deliverables at a Glance

In the table below, the impact of each task on your final grade for the course is indicated in the “% weight” column.

Assignment/Task	Quantity	% Weight	Total %	Author
Assignments	3	5	15	Individual
Projects	2	20	40	Group
Final exam	1	35	35	Individual
Class participation		10	10	Individual
			100%	

For details, see “Written Assignments/Projects and Exam[s]: Descriptions”, p. 6.

Course Material

The course uses a set of handouts, and the same textbook used in the MBAN 6110 Data Science I, which can be purchased at the York University Bookstore (<http://bookstore.blog.yorku.ca>):

Data Science for Business: Fundamental Principles of data mining and data analytic thinking, Provost and Fawcett (2013).

Reserved readings at the library have been selected from periodicals and journals. Go to <http://www.library.yorku.ca>, click on the “Reserves” tab and type in “MBAN 6120” to access these readings.

The *Course Materials Database (CMD)* has been created within Schulich’s Lotus Notes. It contains general information for Schulich students and information and materials specific to this course. Check it frequently.

Student Preparation for Class and Class Participation: Expectations

Class Participation (contribution). It is expected that students attend all sessions of this intensive course. Class discussion focuses around that week's assignment. Students have an opportunity to ask questions to the lecturer, to share their own experiences using similar techniques, and to discuss different approaches to the problem. A student's grade for class participation reflects both the quantity and quality of the student's comments.

Students are expected to bring their personal laptop for the in-class lab. Due to the peculiarity of the subject, class preparation is minimal, but students are expected to repeat the examples covered in the lecture and the in-class lab after each lecture; and practice the learned computer skills by completing the assigned homework on a timely fashion.

Class-by-Class Syllabus

Topics, readings, and other preparations for every class are listed below:

Note: If any changes in this schedule become necessary, notifications will be posted on the course CMD, and when changes need to be announced between classes, an email will be sent to students' Lotus Notes email accounts, notifying them of the change.

DATE/CLASS	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
January 11 (1)	<p><u>Unix Command Line and Python I</u></p> <p>After a quick introduction to the course, we teach the Unix command line and utilities, including <i>grep</i>, <i>sort</i>, <i>uniq</i>, <i>cut</i>, <i>cat</i>, <i>ls</i>, <i>cd</i>, <i>head/tail</i>, <i>less</i>, <i>wc</i>; <i>pipe</i>; <i>xargs</i>, <i>find</i>, <i>sed</i>, <i>screen</i>, <i>top</i>, <i>fmt</i>; editor <i>nano/vim/emacs</i>. Python as a major programming language for the data science is introduced in the second half of the session.</p> <p>Read:</p> <ul style="list-style-type: none">▪ Instructor Handout(s) <p>In-class Case/Exercise:</p> <ul style="list-style-type: none">▪ setup computing environment for data science: Python + Unix command line▪ <i>Windows</i>: Cygwin + Python▪ <i>OS-X</i>: Terminal + Python▪ <i>Linux</i>: Terminal + Python
January 18 (2)	<p><u>Python II</u></p> <p>This session is devoted to Python programming for data science. The following topics will be covered: Python data science building blocks; the interactive workflow; the Python language (basic types, control flow, script and function); Numpy (creating and using array); Matplotlib; Scipy (linear algebra and statistics modules)</p> <p>Read:</p> <ul style="list-style-type: none">▪ Instructor Handout(s)

DATE/CLASS	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
	In class Case/Exercise: <ul style="list-style-type: none"> ▪ Python implementation of Fibonacci sequence generator
January 25 (3)	<u>Data Components, formats and collections</u> Through an example of e-commerce website, we introduce various data components, formats (csv, xml, json, yaml) and how to organize data. Read: <ul style="list-style-type: none"> ▪ Instructor Handout(s) In class Case/Exercise: <ul style="list-style-type: none"> ▪ implement a simple recommendation system using Python
February 1 (4)	<u>Data Visualization</u> Visualization is a powerful way to explore a big data set. We introduce numerical data visualization techniques using Python. The session starts with a gallery of classical and modern data visualization masterpieces, followed by technical details on how to construct various types of charts in Python. Read: <ul style="list-style-type: none"> ▪ Instructor Handout(s) ▪ Provost and Fawcett In class Case/Exercise: <ul style="list-style-type: none"> ▪ Hands-on with data visualization in Python <u>Assignment Due:</u> <ul style="list-style-type: none"> ▪ Assignment 1
February 8 (5)	<u>Predictive modelling in Python</u> This session will cover both the supervised learning (regression, support vector machine) and unsupervised learning (clustering) using the Scikit module from Python. Read: <ul style="list-style-type: none"> ▪ Instructor Handout(s) In class Case/Exercise: <ul style="list-style-type: none"> ▪ stock market structure using clustering technique, and visualization
February 15 (6)	<u>SQL using Python</u> We focus on how to use Python Sqlite module to manage a relational database. Read: <ul style="list-style-type: none"> ▪ Instructor Handout(s) In class Case/Exercise: <ul style="list-style-type: none"> ▪ use Python Sqlite to create a database, import data, manually

DATE/CLASS	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
	add/update/delete records, make queries, and conduct simple analysis. It is optional to setup sqlite-manager in firefox to view the database
February 22	<i>Reading Week – No Class</i>
March 1 (7)	<p><u>Web API and regular expression</u></p> <p>Web API (application programmer interfaces) are standardized protocols for sending requests to servers over Internet and a definition for the structure of the responses. We will interact with web APIs using Python and Curl. Regular expression is a powerful tool to process the retrieved text information.</p> <p>Read:</p> <ul style="list-style-type: none"> <li>▪ Instructor Handout(s) <p>In class Case/Exercise:</p> <ul style="list-style-type: none"> <li>▪ use regular expression to extract information from retrieved webpages <p><u>Assignment Due:</u></p> <ul style="list-style-type: none"> <li>▪ Project A
March 8 (8)	<p><u>A/B testing for decision making</u></p> <p>The behavior of humans online is still poorly understood.. Big data analysis has proven effective in this domain. In this session we introduce the powerful A/B testing technique, which is frequently used in web optimization, but also becomes the de facto decision model for modern high-tech companies as well.</p> <p>Read:</p> <ul style="list-style-type: none"> <li>▪ Instructor Handout(s) <p>In class Case/Exercise:</p> <ul style="list-style-type: none"> <li>▪ use Python to study a log of several webpage variations A/B testing <p><u>Assignment Due:</u></p> <ul style="list-style-type: none"> <li>▪ Assignment 2
March 15 (9)	<p><u>Massive data with Hadoop and MapReduce I</u></p> <p>The session starts with a virtual tour of a modern data center and a description of the range of big data size quantitatively and qualitatively. Then we explain the mechanism behind the Distributed File System, and Hadoop. The focus will be the MapReduce programming model and examples of MapReduce will be demonstrated through the Hadoop Streaming function.</p> <p>Read:</p> <ul style="list-style-type: none"> <li>▪ Instructor Handout(s) <p>In class Case/Exercise:</p> <ul style="list-style-type: none"> <li>▪ install Hadoop on VMware on laptop; practice the word-count MapReduce

DATE/CLASS	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
	algorithm
March 22 (10)	<p><u>MapReduce II</u> Continue our study of the MapReduce programming framework with focus on the parallelized stochastic gradient algorithm.</p> <p>Read:</p> <ul style="list-style-type: none"> Instructor Handout(s) <p>In class Case/Exercise: implement a Stochastic Search algorithm in Python</p>
March 29 (11)	<p><u>Case study: Netflix competition</u> Recommendation systems are one of the most successful applications of data science. In this session, we study the case of Netflix Competition (\$1 million grand prize). The ongoing Kaggle competition will be introduced in the session as well.</p> <p>Read:</p> <ul style="list-style-type: none"> Instructor Handout(s) <p><u>Assignment Due:</u></p> <ul style="list-style-type: none"> Project B
April 5 (12)	<p><u>Case Study: Online targeted displaying</u> Online advertising agencies leverage emerging big data sources and varieties of data to gain a 360 view of customers, to target advertisement accordingly. In this session, we introduce this new billion-dollar online targeted displaying industry from a data science point of view.</p> <p>Read:</p> <ul style="list-style-type: none"> Instructor Handout(s) <p><u>Assignment Due:</u></p> <ul style="list-style-type: none"> Assignment 3

Written Assignments/Projects and Exam[s]: Descriptions

Due Date

February 1	<u>Assignments</u>
March 8	The assignment requires students to answer a set of questions closely related to the handouts or textbook contents, or conduct numerical experiments. The textbook and prior lectures provide all the information students need to complete the assignments. Students must submit assignments at the beginning of the lecturing session on the due date.
April 5	

Due Date

Value: 3 x 5% = 15%

March 1 Projects A & B

March 29 Students need to form project teams of size 1 – 4, and complete the projects within a specified time period by submitting a project report and the computer code. The project requires a team to apply the learned techniques to implement a data-centred business problem.

Value: 2 x 20% = 40%

April 12 Final Exam

The material for the final exam incorporates all the techniques discussed in the course. It includes problem-solving questions, short-answer questions, and one case question. The three-hour exam will take place at a time and place to be announced.

Value: 35%

Late Work: Students will lose 5% of their assignment grade for every day the assignment is delayed.

General Academic Policies: Grading, Academic Honesty, Accommodations and Exams

Grades at Schulich are based on a 9-value index system. The top grade is A+ (9) and the minimum passing grade is C- (1). To keep final grades comparable across courses, elective courses are expected to have a mean grade between 5.2 and 6.2.

The Schulich School does not use a percentage scale or prescribe a standard conversion formula from percentages to letter grades. Conversions within a course are at the discretion of the instructor.

For more details on the index, grading policy, and grade point average (GPA) requirements, consult your student handbook.

Academic honesty is fundamental to the integrity of university education and degree programs, and applies in every course offered at Schulich. Students should familiarize themselves with York University's policy on academic honesty, which may be found on the Schulich website:

<http://schulich.yorku.ca/current-students/academic-honesty/>

Accommodations. For accommodations sought due to exam conflicts, religious reasons, unavoidable absences or disabilities, please refer to the Student Handbook or contact Student Services.

For counseling & disability services, contact Student Services or see <http://www.yorku.ca/cds/>.

Exams (Absence from)

Midterm. Students who miss a midterm examination must contact their course instructor within 24 hours and provide the course instructor with documentation substantiating the reason for the absence. A copy of the documentation must also be submitted to Student Services; it will be placed in the student's file.

Final. Within 24 hours of missing a final examination, students must contact the Director of Student Services at (416) 736-5060 and must also contact their course instructor. Formal, original

documentation regarding the reason for missing the exam must be submitted to the Director of Student Services (SSB Room W262) within 48 hours of missing the final exam. Students who miss a final exam due to illness must have their doctor complete an “Attending Physician’s Statement.” For more details, see: <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>.

New Course Proposal: EMBA 6570: Biases, Forecasts and Deep Uncertainty

1. **Program:** Kellogg-Schulich Executive MBA

2. **Course Number:** EMBA 6570

3. **Credit Value:** 2.0

4. **Long Course Title:** Biases, Forecasts and Deep Uncertainty

5. **Short Course Title:** Biases, Forecasts and Deep Uncertainty

6. **Effective Session:** Summer 2017

7. **Calendar (Short) Course Description:**

This course focuses on the challenges of making good decisions in the presence of deep uncertainty, where past experiences are of questionable value and judgements are clouded by behavioural biases, leading to frequent failures. The course provides frameworks to identify these biases and shows how tools of cognitive psychology and probability can effectively mitigate them and improve decision-making processes.

8. **Expanded Course Description:**

This course focuses on the challenges of making good decisions in the presence of deep uncertainty. Unlike ordinary risks, about which there is reliable data and consensus about their likelihoods, uncertainty refers to singular, one-of-a-kind situations where past experience is of questionable relevance to predicting the future. Judgment in these situations of deep uncertainty tends to be clouded by behavioral biases that lead to frequent, often disastrous, forecast failures. This course provides frameworks to identify persistent psychological biases that underlie these failures and shows how tools of cognitive psychology and probability can effectively mitigate them. The course will cover cases on strategic decisions in business contexts such as mergers and acquisitions, disruptive technologies and capacity expansion in commodities, and use these cases to identify of biases like over-optimism, herd behavior, narrow framing, escalation of commitment, winner's curse, failure to appreciate tail risks, and the sunk cost fallacy. The course will introduce frameworks to help participants anticipate these biases and provide tools to improve their decision-making processes, including pre-mortem analysis, scenario analysis, decision trees, models of wisdom of the crowd and informational cascades. Participants are required to have basic knowledge of Excel and probability concepts.

9. **Rationale:**

In today's fast-paced and constantly changing business environment, there are many situations marked by deep uncertainty, where past experience is of questionable relevance to predicting the future and where judgment tends to be clouded by behavioral biases that lead to frequent, often disastrous, forecast failures. These situations occur, among others, in (i) mergers and acquisitions, (ii) capacity expansions in commodity industries, (iii) disruptive technological changes, (iv) tail risks events and network dynamics. The course will provide (a) frameworks that help participants anticipate these biases and (b) tools to improve their decision-making process.

10. **Evaluation:**

The assessment for this course consists of mini-case write-ups (30%) and final group project and presentation (70%). Details about how to fulfill these requirements will be discussed in class.

11. Integrated Courses:

This course is not integrated.

12. Crosslisted Courses:

This course is not crosslisted.

13. Faculty Resources:

This course will be taught by Professor Nabil Al-Najjar, the John L. and Helen Kellogg Professor of Managerial Economics & Decision Sciences (MEDS) and chair of the MEDS department at the Kellogg School of Management. He received his PhD in Economics from the University of Minnesota and prior to joining the Kellogg faculty in 1995, was a faculty member at the University of Quebec in Montreal. Professor Al-Najjar's research focuses on the development of learning-based models of decision making in markets, games and contracts. His papers have been published in top scholarly journals such as the *Journal of Economic Theory*, *Games and Economic Behavior*, and the *RAND Journal of Economics*. For his excellence in teaching, Al-Najjar has twice been the recipient of Kellogg's Sidney J. Levy Award, in 1996-97 for his class in microeconomics, and 2006-07 for his class in competitive strategy. He has also received the Chairs' Core Teaching Award for his class in microeconomics.

14. Physical Resources:

This course will be offered annually during a global elective week at the Miami campus of our partner, the Kellogg School of Management, which will provide all the necessary physical resources before, during and after the course. These resources can be supplemented with the resources of York University Library, should this prove necessary (see below).

15. Bibliography and Library Statement:

All required readings will be made available to participants on Kellogg's Canvas learning management system, to which our students have full access. Further readings can be accessed remotely, either via the library of the Kellogg School of Management, or, as per the attached statement, York University library, which also allows electronic access to relevant readings and toolkits.

Biases, Forecasts, and Deep Uncertainty

Kellogg Global Electives
Miami, April 2017

Professor Nabil Al-Najjar

What this course is about

This course focuses on the challenges of making good decisions in the presence of deep uncertainty. Unlike ordinary risks, about which there is reliable data and consensus about their likelihoods, uncertainty refers to singular, one-of-a-kind situations where past experience is of questionable relevance to predicting the future.

Judgment in these situations of deep uncertainty tends to be clouded by behavioral biases that lead to frequent, often disastrous, forecast failures. This course provides frameworks to identify persistent psychological biases that underlie these failures and shows how tools of cognitive psychology and probability can effectively mitigate them.

The course will cover cases on strategic decisions in business contexts that include:

- Mergers and acquisitions
- Capacity expansions in commodity industries
- Disruptive technological changes
- Tail risks events and network dynamics.

We use these cases to identify of biases like over-optimism, herd behavior, narrow framing, escalation of commitment, winner's curse, failure to appreciate tail risks, and the sunk cost fallacy. The course's frameworks will help you anticipate these biases and will provide tools to improve your decision making process. These tools include pre-mortem analysis, scenario analysis, decision trees, models of wisdom of the crowd and informational cascades.

Course Requirements

1. Mini-case write-ups (30%)
2. Final project and presentation (70%).

Details about how to fulfill these requirements will be discussed in class.

Course Readings and Reference

There is no textbook for this course. Slides, cases, and readings will be made available on Canvas. I also recommend, and will sometimes refer to, the following readings:

Tetlock and Gardner: *Superforecasting: The Art and Science of Prediction*, Crown Publishers, 2015.

Silver: *The Signal and the Noise*, Penguin Books, 2012.

Course Outline

Day 1

Thursday, April 27, 2017.

Topics Covered: *Consolidation; rationalization; pre-mortem analysis.*

Session 1 | Consolidating a Fragmented Market

- *Required reading:*
 - Al-Najjar, N. and N. Pardasani: “*The U.S. Auto Retailing in the Mid 1990’s*,” Kellogg School of Management, 2005.
- *Optional reading:*
 - Yates, R.: “*Revolution in Car Buying*,” Chicago Tribune, 9/16/1995.

Session 2 | Evaluating a Decision Pre-Mortem

- *Reading to pass out in class:*
 - Al-Najjar, N.: “*Facebook Undone*,” Kellogg School of Management, 2011.
- *Required reading:* Please read this article before class.
 - Gary Klein: “*Performing a Project Premortem*,” Harvard Business Review.

Day 2

Friday, April 28, 2017.

Topics covered: *Wisdom of the crowd; prediction markets; herd behavior.*

Mini-case Write-up 1 (Group)

Session 3 | Wisdom of the Crowds

- *Required preparation:*
 - “*Wisdom of the Crowds*,” Kellogg School of Management.
- *Required reading:*
 - Wolfers, J. and E. Zitzewitz: “*Prediction Markets*,” *Journal of Economic Perspectives*, 2004, vol. 18, pp. 107-26.

Session 4 | Herd Behavior

- *Optional reading:*
 - Silver, N.: “*Here is Proof Some Pollsters are Putting a Thumb on the Scale*,” *Fivethirtyeight.com*, November 14, 2014.

Day 3

Saturday, April 29, 2017.

Topics covered: *Epidemics and tipping points. Network effects. Causes and consequences of extreme events.*

Mini-case Write-up 2 (Group)

Session 5 | Network effects

MS in Thailand

Session 6 | Extreme Events and the Long-Tail

Day 4

Sunday, April 30, 2017.

Topics covered: *Option value. Near misses.*

Session 7 | Option Value

These are interesting articles that I will refer to in class:

- *Required preparation:*
 - Al-Najjar, N.: “*Exercise on Cost Uncertainty*,” Kellogg School of Management, 2011.
- *Optional reading:*
 - A. Dixit and R. Pindyck: “*The Options Approach to Capital Investment*,” Harvard Business Review, 1995.
 - T. Horn, D. Lovallo, and S. Viguerie: “*Learning to Let Go: Making Better Exit Decisions*,” The McKinsey Quarterly, 2006.

Session 8 | Near Misses

- *Required preparation:*
 - Tinsley, C., R. Dillon, and P. Madsen: “*How to Avoid Catastrophe*,” Harvard Business Review, 2011, pp. 90-97.

Day 5

Monday, May 1, 2017.

Topics covered: *How correlation impacts forecasts.*

Group Projects and Presentations due

Session 9 | Biased Forecasts and Correlation

Elections...

Session 10 | Presentation Group Projects

Each presentation is 15 minutes (including questions and answers). Other details will be provided in class.

MEMORANDUM
Peter F. Bronfman Business Library

SUBJECT: Library Statement
Biases, Forecasts and Deep Uncertainty
Kellogg Schulich EMBA Program

FROM: Sophie Bury
Head, Peter F. Bronfman Business Library

DATE: February 21st, 2017

Biases, Forecasts and Deep Uncertainty

This proposed new EMBA course, to be taught at Kellogg's Miami campus in residential format, focuses on decision making in the presence of deep uncertainty. This includes coverage of how the tools of cognitive psychology and probability can be applied to identify and mitigate behavioural biases that can lead to disastrous forecast failures.

It is noted that students have no required textbook for this course, and that slides, cases and readings will be made available to them via a course management system (Canvas). While York University Libraries is not required to support this course directly, the online resources available to support this course are summarized, and are available to all registered students remotely.

While this course does focus on strategic decision-making during times of deep uncertainty in a business context, its attention to tools of cognitive psychology and probability, means that e-resources from multiple disciplines stand to be of relevance. This includes the areas of business, psychology, economics and statistics primarily. Access to an expansive range of relevant periodical literature is available via *Proquest Business, Business Source Complete, EconLit, Scholars Portal Journals, JSTOR, PscylInfo, Web of Science, and Current Index to Statistics*.

Other e-resources of relevance include e-books on topics covered in this course. Relevant e-book packages include but are not limited to *Books 24x7, Springer E-Books, and E-Books at Scholars Portal*. Note that all e-books are findable by searching the library catalogue at www.library.yorku.ca and filtering to e-book content.

New Course Proposal: EMBA 6580 Leading Innovation in Emerging Markets

1. **Program:** Kellogg-Schulich Executive MBA
2. **Course Number:** EMBA 6580
3. **Credit Value:** 2.0
4. **Long Course Title:** Leading Innovation in Emerging Markets
5. **Short Course Title:** Leading Innovation in Emerging Markets
6. **Effective Session:** Summer 2017

7. Calendar (Short) Course Description:

This course aims to develop an understanding of market dynamics, regulatory infrastructure, company strategy, and innovation in China. It will examine different companies, their evolving strategies and organizational capabilities, including foreign multinationals, local private companies, local state-owned-enterprises and joint ventures. The course will also explore how these organizations might bring new or renewed capabilities to global markets in the future.

8. Expanded Course Description:

The objective of the course is to help participants develop an understanding of market dynamics, regulatory infrastructure, company strategies, and the innovation paradigm in China, focus on the strategic mindset of evolving customers and diverse stakeholders. Competition in emerging markets is global by itself, and traditional multinational companies (MNCs) and MNCs from emerging market both pursue business growth in these markets. Given the uncertainty, complexity and speed of change, all corporation, be they global or local, industry leaders or start-ups, need to develop strategic abilities and resilience as they do not just follow the market trends but sometimes create markets. This course will offer a panorama of how different types of companies, such as MNCs, local private companies, local state-owned-enterprises and Joint Venture, adapt to the new markets, and lead to subsequent new strategies and organizational capabilities, and how global leadership develops along with the change journey. Finally, we will explore how these organizations might bring these new or renewed capabilities to global markets in the future.

9. Rationale:

Emerging markets have become increasingly important within the global economy. Competition in emerging markets is global by itself, and traditional multinational corporations (MNCs) and MNCs from emerging market both pursue business growth in these markets. Participants in the EMBA program will benefit significantly from this course both through the classes and various guest speakers, since throughout their career many of them will operate or work in emerging markets or interact with companies from emerging markets as suppliers, buyers or competitors.

10. Evaluation:

The assessment for this course will be based on three elements, as follows:

- (i) Class participation (30%) with students evaluated based on on-time attendance and participation during the class discussion;
- (ii) Group assignment (40%) with students divided into groups to discuss a case study and each group delivering a presentation on the last day of class;

(iii) Individual assignment (30%) to be completed about a topic selected by the instructor at the end of the course.

11. Integrated Courses:

This course is not integrated.

12. Crosslisted Courses:

This course is not crosslisted.

13. Faculty Resources:

This course will be taught by Associate Professor Wei Zhang, who is also Assistant Dean of Global Executive Education at Guanghua. A surgeon by training, Professor Zhang also received a multidisciplinary Ph.D. from Harvard University and was a Distinguished Bing Fellow of Health Economics at RAND in the US in 2008 and a permanent management faculty member at the China Europe International Business School (CEIBS) from 2008 to 2012 before joining Guanghua. He has led executive education programs for Novartis, Philips, IBM, Sanofi-Aventis, Johnson & Johnson, MSD and other top global corporations, and has offered executive programs jointly with HBS, INSEAD and Duke CE. His research focuses on innovation in health care, business model innovation in emerging markets, non-market strategy, strategy execution, and economic evaluation of clinical practice. He has written extensively in the areas of health care, has published a book on *Asia Pacific Pharmaceutical Policy* in 2009 contributed articles to top academic journals such as *Journal of Health Economics* and *Health Services Research*, and to the global business media, including the *Wall Street Journal*.

14. Physical Resources:

This course will be offered annually during a global elective week at the campus of our partner, the Guanghua School of Management at Peking University in Beijing, China, which will provide all the necessary physical resources before, during and after the course. These resources can be supplemented with the resources of the York University Library, should this prove necessary (see below).

15. Bibliography and Library Statement:

All additional required readings, which include case studies, will be made available to participants before the start of the course. If necessary, further readings and electronic resources can be accessed remotely, via the York University Library website (as per the attached statement).

Leading Innovation in Emerging Markets

Instructor: Wei Zhang

Semester: Spring 2017

Credit Hour: 15

Prerequisite: None

Program: Guanghai-Kellogg EMBA

Time: May 26-31, 2017

Credits: 1

Location: Beijing Campus

Contact Information:

Office: Guanghai Building 2/333

Tel: 86-10-6276 7905

Email: wzhang@gsm.pku.edu.cn

Brief Course Description

Competition in emerging markets is global by itself, and traditional MNC and MNC from emerging market both pursue business growth in these markets. Given the uncertainty, complexity and speed of change, corporation, both global and local, both industry leader and start-ups, need to develop strategic ability and resilience as they do not just follow the market trends but sometimes create the markets.

This course will offer a panorama of how different forms of companies, such as MNC, local private companies, local state-owned-enterprises and Joint Venture, adapt to the new market, and lead to subsequent new strategy and organization capability, and how global leadership develops along with the change journey. Finally, we will explore how these organizations might bring these new or renewed capability to global market in the future.

Course Objectives

Develop an understanding of market dynamic, regulatory infrastructure, company strategy, and innovation paradigm in China, and focus on strategy mindset of evolving customers and diverse stakeholders.

Detailed Course Plan

—In Class Sessions:

1. Local player winning global market (Haier, etc.)
2. Global leader evoking in China (Yum, Airbus)
3. New wave of internet start-ups
4. From social issue to new business model
5. Non-market strategy in new market

—Field Learning:

Global leader evoking in China (Airbus in Tianjin)

Local player winning global market (Bio-Pharmaceutical Company)

Teaching Methods

Case, Group Discussion, and Role-play

Textbooks

None

Cases and Readings

Khanna, T., Palepu, K.G., & Andrews, P. (2011). *Haier: Taking a Chinese Company Global in 2011*. HBS No. 9-712-408. Boston, MA: Harvard Business School Publishing.

Li, K. (2013). China will stay the course on sustainable growth. *Financial Times*. Retrieved from <https://www.ft.com/content/03377ccc-16e0-11e3-9ec2-00144feabdc0>

Xi, J. (2017). President Xi's speech to Davos in full. Retrieved from <https://www.weforum.org/agenda/2017/01/full-text-of-xi-jinping-keynote-at-the-world-economic-forum>

Course Assessment

Participation (30%)

Students will be evaluated on on-time attendance and participation during the class discussion.

Group Assignment (40%)

Students will be divided into groups to discuss a case study. Each group will deliver a presentation on the last day of class.

Individual Assignment (30%)

Students will complete an individual assignment about a topic selected by the instructor at the end of the course.

MEMORANDUM
Peter F. Bronfman Business Library

SUBJECT: Library Statement for EMBA 6580 Leading Innovation in Emerging Markets
Kellogg-Schulich EMBA Program

FROM: Xuemei Li, Business Librarian,
Peter F. Bronfman Business Library

DATE: March 13, 2017

Leading Innovation in Emerging Markets

This course teaches students how to develop an understanding of market dynamic, regulatory infrastructure, company strategy, and innovation paradigms in China, and focuses on the strategy mindset of evolving customers and diverse stakeholders. This course will be offered at the Schulich School of Business' partner school, the Guanghua School of Management at Peking University.

As this course is offered at the Kellogg campus, York University Libraries will not be required to provide resources directly. It is noted that the cases and readings assigned for this course are made available by the instructor. As a result, the online resources related to cases explored that York University Libraries might offer are not outlined in light of the stated course-specific description.

Students will complete an individual assignment about a topic selected by the instructor at the end of the course. They can consult the library's research guides for e-resource links on topics of relevance to their assigned individual assignments: www.library.yorku.ca/web/bbl/guides. In addition, BRYT (Business Research at York Toolkit) – bryt.library.yorku.ca/ - is recommended as it offers short videos and real-time database walkthroughs which guide students through conducting both company and articles research.

New Course Proposal: EMBA 6590 The Analytics Edge

1. **Program:** Kellogg-Schulich Executive MBA

2. **Course Number:** EMBA 6590

3. **Credit Value:** 2.0

4. **Long Course Title:** The Analytics Edge

5. **Short Course Title:** The Analytics Edge

6. **Effective Session:** Summer 2017

7. **Calendar (Short) Course Description:**

This course aims to provide participants with an understanding of the *potential* of statistical and machine learning approaches in business to provide organizations with a competitive edge, by (i) gaining first-hand experience with analytical tools and the decisions based on them; (ii) studying data analytics-enabled business models; and (iii) exploring the building of data analytics capabilities within the organization.

8. **Expanded Course Description:**

This course aims to help senior managers succeed in today's big data landscape. It shows participants what tools are available to gather data, to subsequently aggregate data into information and how to use this information to make better decisions. To this end, we discuss approaches to *predictive analytics*, which refers to the ability of discerning patterns from past and current data to prediction of future events. Examples include healthcare applications such as heart attack pattern detection and financial applications such as fraud detection in regards to credit card usage. We then turn to *prescriptive analytics* which involves optimization of resources based on existing data and recognized patterns. Applications include revenue management at airlines and hotels or online dating sites where regression and optimization is supposed to figure out the perfect match. In a third step, we will discuss how analytics transforms existing business models and enables new breeds of business models with examples such as auto insurance tariffs based on in-situ driving data.

9. **Rationale:**

Today's business world is characterized by an unprecedented growth of data, by 2020 we will experience a 300-fold increase from 2005. This data comes in a broad variety of forms: 420 million wearable health monitors are currently in use, more than 4 billion hours of video are watched on YouTube each month and 30 billion pieces of content are shared on Facebook every month. A lot of the data is analyzed in real time: modern cars have about 100 sensors and the NYSE captures 1 TB of trade information during each trading session. However, 1 in 3 business leaders don't trust the information they use to make decisions and about 27% of respondents in one survey were unsure of how much of their data was inaccurate. In this big data landscape, it becomes imperative for senior managers to understand what tools are available to gather data, to subsequently aggregate data into information and how to use this information to make better decisions.

10. **Evaluation:**

The assessment for this course will be based on two main elements, each contributing 50% to the final grade:

(i) team-based short exercises, conducted each day of the course and related to descriptive, predictive and prescriptive analytics as well as existing and potential data-driven business models; (ii) an individual final project, requiring an exploration of the data analytics cycle (discovery, data preparation, model building, communication of results, operationalization) for a data analytics opportunity within the participant's own organization.

11. Integrated Courses:

This course is not integrated.

12. Crosslisted Courses:

This course is not crosslisted.

13. Faculty Resources:

This course will be taught by Prof. Dr. Stefan Spinler, who has a Chair in Logistics Management endowed by the Swiss Kühne Foundation and is the Director of the Kühne Institute for Logistics Management and the Center of Digitization at the WHU – Otto Beisheim School of Management in Vallendar, Germany. He has Master's degree (Dipl.-Ing.) in Electrical Engineering from the Friedrich–Alexander-University Erlangen-Nürnberg and a doctorate from WHU. He has been a frequent visiting professor at the Wharton School and the Massachusetts Institute of Technology. His recent research focuses on urban logistics and supply chain optimization.

14. Physical Resources:

This course will be offered annually during a global elective week at the campus of our partner, the WHU – Otto Beisheim School of Management in Vallendar, Germany, which will provide all the necessary physical resources before, during and after the course. These resources can be supplemented with the resources of York University Library, should this prove necessary (see below).

15. Bibliography and Library Statement:

Participants in the course will be provided with two books: Bertsimas, O'Hair and Pulleyblank, *The analytics edge* (Dynamic ideas, 2016) and James, Witten, Hastie, Tibshirani, *An introduction to statistical learning* (Springer, 2014). All additional required readings will be made available to participants on the WHU's learning management system, to which our students have full access. If necessary, further readings and electronic resources can be accessed remotely, via the York University library website (as per the attached statement).

The analytics edge

Prof. Dr. Stefan Spinler

Director, Kühne Institute for Logistics Management
Director, Center of Digitilization
WHU – Otto Beisheim School of Management
56179 Vallendar
e-mail: sspinler@whu.edu



1. Course content

Today's business world is characterized by an unprecedented growth of data, by 2020 we will experience a 300-fold increase from 2005. This data comes in a broad variety of forms: 420 million wearable health monitors are currently in use, more than 4 billion hours of video are watched on YouTube each month and 30 billion pieces of content are shared on Facebook every month. A lot of the data is analyzed in real time: modern cars have about 100 sensors and the NYSE captures 1 TB of trade information during each trading session. However, 1 in 3 business leaders don't trust the information they use to make decisions and about 27% of respondents in one survey were unsure of how much of their data was inaccurate. 4.4 million IT jobs have been created globally to support big data. AlphaGo has recently beaten the reigning (human) Go champion.

In this big data landscape, it becomes imperative for senior managers to understand what tools are available to gather data, to subsequently aggregate data into information and how to use this information to make better decisions. To this end, we discuss approaches to *predictive analytics*, which refers to the ability of discerning patterns from past and current data to prediction of future events. Examples include healthcare applications such as heart attack pattern detection and financial applications such as fraud detection in regards to credit card usage. We then turn to *prescriptive analytics* which involves optimization of resources based on existing data and recognized patterns. Applications include revenue management at airlines and hotels or online dating sites where regression and optimization is supposed to figure out the perfect match. In a third step, we will discuss how analytics transforms existing business models and enables new breeds of business models with examples such as auto insurance tariffs based on in-situ driving data.

The primary focus of this course is to gain an understanding of the *potential* of statistical and machine learning approaches in business. Senior managers should have trust in their analytics teams that they come up with solutions that entail a competitive edge – such trust will be bolstered by having first-hand experience with analytical tools and the decisions based on them. In a second step, we will study data analytics-enabled business models, while the final section of this course will explore the building of data analytics capabilities within the organization.

2. Deliverables during the course

Each day will contain short exercises related to descriptive, predictive and proscriptive analytics. Furthermore, students are asked to analyze existing and explore potential data-driven business models. All assignments are to be done in teams.

3. Final Project

The final project, to be done individually, will require an exploration of the data analytics cycle (discovery, data preparation, model building, communication of results, operationalization) for a data analytics opportunity within the student's organization. The final project will make up 50% of the grade.

4. Literature

Two books, useful for the first three days of the course, are indicated below, further readings will be provided via moodle.

Bertsimas, D., A.K. O'Hair, W. R. Pulleyblank: The analytics edge. Dynamic ideas, 2016.

James, G., D. Witten, T. Hastie, R. Tibshirani: An introduction to statistical learning. Springer, 2014.

5. Office hours

Please send an e-mail to sspinler@whu.edu to arrange consultation.

Session 01: May 09

Descriptive analytics and the power of building models, predictive analytics

Data gathering, data pre-processing and cleaning, linear regression, logistic regression; applications: predicting wine quality, assessing healthcare quality, baseball player performance prediction; basics of R

Session 02: May 10

Predictive analytics

Regression techniques for high-dimensional data, machine learning, random trees and random forests; exemplary applications: recommendation systems, predictive policing, heart attack prediction, real estate valuation

Session 03: May 11

Prescriptive analytics

Optimization based on the recognized patterns in the predictive analytics phase; examples include revenue management at airlines, financial portfolio management and applications in the energy industry.

Guest speaker: Dr. Stanislaw Schmal, Consultant, Lufthansa Industry Solutions: The value of data analytics for airlines

Session 04: May 12

Data analytics-enabled business models

Data is the oil of the 21st century – exploration of successful data-driven business models.

Guest speaker: N.N., Amazon Germany

Session 05: May 13

Building data analytics capabilities within the organization

Attracting talent, data analytics team composition, interacting with start-ups

Guest speaker: N.N., McKinsey Consulting

MEMORANDUM
Peter F. Bronfman Business Library

SUBJECT: Library Statement for The Analytics Edge
Kellogg-Schulich EMBA Program

FROM: Xuemei Li, Business Librarian
Peter F. Bronfman Business Library

DATE: March 13, 2017

The Analytics Edge

This course helps students to gain an understanding of the potential of statistical and machine learning approaches in business. Senior managers should have trust in their analytics teams that they come up with solutions that entail a competitive edge – such trust will be bolstered by having first-hand experience with analytical tools and the decisions based on them. Additionally, students will study data analytics-enabled business models, while in the final section of this course students will explore the building of data analytics capabilities within the organization. This course will be offered at the Schulich School of Business' partner school, the WHU - Otto Beisheim School of Management.

As this course is offered at the Kellogg campus, York University Libraries will not be required to provide resources directly. It is noted that the readings assigned for this course are made available by the professor for download on the course web site.

In addition to deliverables during the course, students are requested to do an individual project which will require an exploration of the data analytics cycle (discovery, data preparation, model building, communication of results, operationalization) for a data analytics opportunity within the student's organization. Students can consult the library's research guides for e-resource links on themes of relevance to their project: www.library.yorku.ca/web/bbl/guides. In addition, BRYT (Business Research at York Toolkit) – bryt.library.yorku.ca/ - is recommended as it offers short videos and real-time database walkthroughs which guide students through conducting both company and articles research.

Course Change Proposal

The following information is required for all course change proposals at the undergraduate and graduate level. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Program

Kellogg-Schulich Executive MBA Program

2. Course Number and Credit Value

EMBA 6170 2.00

3. Course Title

a) Long Course Title

Retail Analytics

b) Short Course Title

Retail Analytics

4. Existing Pre-requisites/Co-Requisites

none

5. Type of Course Change (indicate all that apply)

<input type="checkbox"/>	in course number
<input type="checkbox"/>	in credit value (provide course outline)
<input checked="" type="checkbox"/>	in course title (provide course outline; short course titles may be a maximum of 40 characters, including punctuation and spaces)
<input checked="" type="checkbox"/>	in course description (provide course outline; short course descriptions may be a maximum of 60 words, written in present tense)
<input type="checkbox"/>	in learning objectives/outcomes (please append the program's existing learning outcomes as a separate document)
<input type="checkbox"/>	in integration (provide statement of approval from other program)
<input type="checkbox"/>	in cross-listing (provide statement of approval from other program)
<input type="checkbox"/>	in pre/co-requisite
<input type="checkbox"/>	expire course
<input type="checkbox"/>	other (please specify)

6. Effective Session of Proposed Change(s)

Summer 2017

7. Academic Rationale

The revised title fits the content of this course better in that its insights can be applied to all marketing activities not just retail.

8. Proposed Course Information

Existing Course Information (Change from)	Proposed Course Information (Change to)
Course Title: <i>Retail Analytics</i>	Course Title: <i>Marketing Analytics</i>
Short Description: This course will examine how various retail	Short Description: This course will examine how various marketing

Marketing Analytics

EMBA Miami Global Live In Week

Professor Eric Anderson
April 2017

Office: Leverone 455
Cell Phone: 312-504-6822
Office Phone: 847-467-6482
E-mail: eric-anderson@kellogg.northwestern.edu,

Overview of the Course

Marketers now have access to unprecedented amounts of data from transactions, clicks, online conversations and experiments. This explosion of data has led many firms to develop analytic capabilities that can deliver insights and more scientific decision making.

The goal of this class is to understand how data and analytics to evaluate the success or failure of a marketing program. During the week, you will see how analytics can be used to tackle various marketing problems. We will look at questions such as

Did the launch of Microsoft Windows store within a store concept succeed?
How do I predict and manage customer churn?
Did a mobile promotion for an apparel retailer succeed?
Did I set the right price for my new product?

A key take-away from this class will be the **Analytics Framework**, which provides a cohesive view of how to tackle management problems using analytics.

Students in this class will be expected to bring a business problem that they are currently working on in their job (or plan to work on in the near future). As your final assignment, you will develop a **Marketing Analytics Plan** that illustrates how you will tackle your problem using data and analytic methods.

The class is very data-focused. We will primarily use Microsoft Excel as our tool for analysis.

Required Material

Course Packet

Text

There is no required textbook for this course.

Evaluation of Work	Weight
1. Class Participation	20%
2. Three Homework Assignments (Group)	45%
3. Analytics Plan (Individual)	35%

Each of these is discussed below.

1. Class Participation

Class participation is 20% of your grade. Positive contributions that deepen our collective understanding of a topic and build class discussion increase your score. Attending class and not speaking has neither a positive nor a negative impact on your participation grade. Late arrivals are permitted, but you can earn no participation points for a session that you are late. Poor preparation and participation that distracts from class discussion decrease your participation score.

2. Homework

There will be a short homework assignment for the first three class sessions. Instructions for these assignments will be posted on the course web site (Canvas).

There will be no formal assignment on Monday night as the farewell dinner commences shortly after class. However, I will handout preparation questions for the Keurig case that we will cover on Monday morning.

Late homework assignments are not accepted. We will discuss homework assignments in-class the day that they are submitted. In fairness to everyone in the class, I cannot accept any late assignments.

All assignments must be submitted electronically through Canvas. Assignments will be returned electronically via Canvas.

3. Final Project

The final project requires you to apply the course concepts to a current business problem that you face. You must develop an Analytics Plan that articulates how you will use data and analytic methods to assess your business problem.

Detailed instructions will be provided in class.

4. Grading

Your course grade is a weighted average of class participation, case analyses, homework, and the final project.

Per Kellogg policy, re-grade requests must be submitted within 10 days from when the assignment (i.e., case write-up, homework, exam) is returned. Along with the graded assignment, you must attach a letter explaining why you are requesting a re-grade. While I will consider the specific concerns cited in your letter, I will re-grade the entire assignment. Please remember that small changes in your grade on a single assignment typically do not affect your overall course grade.

5. Honor Code

The Kellogg Honor Code is applicable in this class. The complete text of the Honor Code is available on the Honor Code web site.

http://www.kellogg.northwestern.edu/stu_aff/policies/honorcode.htm

The Honor Code is enforced at Kellogg and violations are subject to disciplinary sanctions. Honor Code issues seldom arise because of Kellogg's culture.

General ethics and honor code concerns may apply to the specific components of this course as follows:

- Homework discussions should be limited to your homework group. It is not appropriate to discuss graded homework assignments with students outside your homework group.
- It is appropriate to discuss non-graded assignments with anyone in the course.
- For all graded assignments, you may not use materials containing related analyses from other sources. This includes, but is not limited to, material from current and former Kellogg students and analyses from the Internet. Similarly, students may not use materials distributed by faculty to previous classes (e.g. a case summary handed out to last year's class).
- I expect you to have a full understanding of any written material you, or somebody else on behalf of you, submit(s) with your name on it. You must come to this understanding in collaboration with your group and you must be completely familiar with the material and be able to answer questions about the assignment. Substantial contribution by each group member is expected. The act of signing the assignment signifies that you have substantially participated in the preparation of the assignment.

The discussion in this syllabus of the Honor Code, while intended to be as comprehensive as possible, may not cover all applications of the Honor Code. If you believe something is unclear or omitted, please do not hesitate to speak to me.

6. Overheads

Overheads can be downloaded from the course web site.

7. Laptops and Electronic Devices

You may use laptops in this class for in-class data analysis. This is the only time when laptop usage is allowed in class.

Schedule for MKTG 462 Retail Analytics

Thursday April 14, 2015

- Introduction to Marketing Analytics
- Natural Experiments

Friday April 15, 2015

- Randomized Field Experiments
- HOMEWORK DUE: Best Buy Case**

Saturday April 16, 2015: No Class

Sunday April 17, 2015

- Pricing and Revenue Models
- HOMEWORK DUE: My Madison Case**

Monday April 18, 2015

- Predictive and Prescriptive Analytics
- HOMEWORK DUE: Revenue Models**

Tuesday April 19, 2015

- Analytics for New Products

FINAL Project: DUE: Sunday May 8

Day 1: Introduction, Analyzing Natural Experiments

Required Readings

“A Step-by-Step Guide to Smart Business Experiments”, Anderson and Simester (2011), *Harvard Business Review*

“Online Ads and Offline Sales: Measuring the Effect of Retail Advertising via a Controlled Experiment on Yahoo!” Lewis and Reiley, *Quantitative Marketing and Economics*, 2014.

Homework

HW1: Best Buy Case

Readings on Canvas

“Store-within-a-store: Brick-and-mortar's 'godfather strategy',” By Daphne Howland, April 6, 2015, Retail Dive

“Retail Analytics Moves to the Frontline,” RSR Report, 2014

“The Future Of Retail: It's All In Big Data,” Forbes BrandVoice, Nov 26, 2013

“We Have No Idea if Online Ads Work,” Slate.com, June 17, 2014.

“A Dangerous Question: Does Internet Advertising Work at All?,” The Atlantic, June 13, 2014.

Day 2: Randomized Experiments

Required Readings

“The Discipline of Business Experimentation”, Harvard Business Review, December 2014

“Online Controlled Experiments and A/B Tests,” Ron Kohavi and Roger Longbotham, forthcoming Encyclopedia of Machine Learning and Data Mining

Homework

HW2: My Madison

Readings on Canvas

“Why businesses need to design more reliable experiments”, Fortune, November 24, 2014 (overlaps with HBR article)

Kellogg: Mobile Marketing in 2015

“Uber's Travis Kalanick Explains His Pricing Experiment,” *New York Times*, July 11, 2014.

“Retailers Share Their Omnichannel Experiments,” Steve Norton, Jan 12, 2015, WSJ Blog

“How Valve experiments with the economics of video games,” Geekwire.com, October 23, 2011

Day 3: Pricing and Revenue Models

Required Readings

How Jessica Alba Built A \$1 Billion Company, And \$200 Million Fortune, Selling Parents Peace Of Mind, Forbes, May 27, 2015

“The Problems with Jet.com’s Pricing Model,” Harvard Business Review Online, July 22, 2015

“Why Jet.com Through Out its Business Model,” Inc, October 7, 2015

“Amazon Prime memberships grow 53% in 2014, despite \$20 price hike,” GeekWire, Jan 29 2015

“Prime will grow Amazon revenue longer than you think,” Tom DiChristopher, Friday, 11 Sep 2015, <http://www.cnbc.com>

Homework

HW3: Revenue Models

Optional Readings on Canvas

“In Praise of Efficient Price Gouging,” MIT Technology Review, August19, 2014

“How Sears Uses Big Data to Get a Handle on Pricing,” Rachel King, CIO Journal, June 14, 2012.

“PepsiCo rethinks U.S. pricing to attract more everyday buyers,” May 2013.

Day 4: Predictive & Prescriptive Analytics

Required Readings

Case: S-Mobile Churn (posted on Canvas)

“Big Data In Retail: How To Win With Predictive Analytics,” ForbesBrandVoice, Feb 18, 2015

“Customer Retention Is King: The Future of Retention Marketing,” Jerry Jao, Forbes.com, January 21, 2015

Homework

Read Keurig At Home Case (nothing to hand-in, see prep questions on Canvas)

Day 5: Analytics for New Products

Required Readings

Keurig at Home: Managing a New Product Launch (Kellogg Case)

“Harbingers of Failure,” Anderson, Fong, Simester, Tucker, Journal of Marketing Research, 2015

Optional Reading on Canvas

Keurig: From David to Goliath, The Challenge of Gaining and Maintaining Marketplace Leadership (Kellogg Case)

“Apple wins appeal against Samsung; Technology “, Tim Bradshaw, 19 September 2015, Financial Times

Retail Analytics

EMBA Miami Global Live In Week

Professor Eric Anderson
April 2015

Office: Leverone 455
Cell Phone: 312-504-6822
Office Phone: 847-467-6482
E-mail: eric-anderson@kellogg.northwestern.edu,

Overview of the Course

Retailers now have access to unprecedented amounts of data from transactions, clicks, online conversations and experiments. This explosion of data has led many firms to develop analytic capabilities that can deliver insights and more scientific decision making.

In this class, we will examine how various retail problems can be tackled with analytics. A major focus of the class will be on pricing and promotion, but we will also tackle problems in retail advertising and unstructured text analysis. You will be introduced to analytic techniques that have been adopted by the best-in-class firms and have an opportunity to use state-of-the-art commercial software.

We illustrate how to apply the course concepts through case analyses, examples and in-class exercises. The class is very data-focuse. A solid understanding of Microsoft Excel is required for this course.

Class Meeting Dates and Times

Thursday April 16, 2015	1:00 pm to 4:15 pm
Friday April 17, 2015	1:00 pm to 4:15 pm
Saturday April 18, 2015	8:30am to 11:45 am
Sunday April 19, 2015	8:30am to 11:45 am
Monday April 20, 2015	8:30am to 11:45 am

Required Material

Course Packet

Text

There is no required textbook for this course.

Evaluation of Work	Weight
1. Class Participation	20%
2. Case Analysis & Homework	50%
3. Final Exam	30%

Each of these is discussed below.

1. Class Participation

Class participation is 20% of your grade. Positive contributions that deepen our collective understanding of a topic and build class discussion increase your score. Attending class and not speaking has neither a positive nor a negative impact on your participation grade. Late arrivals are permitted, but you can earn no participation points for a session that you are late. Poor preparation and participation that distracts from class discussion decrease your participation score.

2. Case Analysis and Homework

There will be one short homework assignment for the first four class sessions. Instructions for these assignments will be posted on the course web site (Canvas).

Late homework assignments are not accepted. We may discuss homework assignments in-class the day that they are submitted. In fairness to everyone in the class, I cannot accept any late assignments. A late assignment will result in a zero for that assignment. There is no way to make up for a missed assignment; I do not offer additional assignments or extra work in lieu of a missed assignment. Given this, please pay close attention to deadlines.

All assignments must be submitted electronically through Canvas. Assignments will be returned electronically via Canvas.

3. Final Exam

The final exam will be a take-home, open-book, open-laptop exam. The exam will be done individually and you can anticipate that you will be required to perform some data analysis as part of the exam. You **MAY NOT** collaborate with others during the exam; you may also only use material that was provided during the class. Use of any other material or discussion of the exam with others is an honor code violation and will result in a failing grade. This includes but is not limited to accessing any material beyond the scope of the course, surfing the web and discussions with other students.

4. Grading

Your course grade is a weighted average of class participation, case analyses, homework, and the final exam.

Per Kellogg policy, re-grade requests must be submitted within 10 days from when the assignment (i.e., case write-up, homework, exam) is returned. Along with the graded assignment, you must attach a letter explaining why you are requesting a re-grade. While I will consider the specific concerns cited in your letter, I will re-grade the entire assignment. Please remember that small changes in your grade on a single assignment typically do not affect your overall course grade.

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- It is appropriate to discuss non-graded assignments with anyone in the course.
- For all graded assignments, you may not use materials containing related analyses from other sources. This includes, but is not limited to, material from current and former Kellogg students and analyses from the Internet. Similarly, students may not use materials distributed by faculty to previous classes (e.g. a case summary handed out to last year's class).
- I expect you to have a full understanding of any written material you, or somebody else on behalf of you, submit(s) with your name on it. You must come to this understanding in collaboration with your group and you must be completely familiar with the material and be able to answer questions about the assignment. Substantial contribution by each group member is expected. The act of signing the assignment signifies that you have substantially participated in the preparation of the assignment.

The discussion in this syllabus of the Honor Code, while intended to be as comprehensive as possible, may not cover all applications of the Honor Code. If you believe something is unclear or omitted, please do not hesitate to speak to me.

6. Overheads

Overheads can be downloaded from the course web site.

7. Laptops and Electronic Devices

You may use laptops in this class for in-class data analysis. This is the only time when laptop usage is allowed in class.

Schedule for MKTG 462 Retail Analytics

Thursday April 16, 2015

- Introduction to Retail Analytics

Friday April 17, 2015

- Customer Value and Market Simulator

HOMEWORK DUE: Energy Bar Pricing and Merchandising

Saturday April 18, 2015

- Retail Experiments and Online Advertising

HOMEWORK DUE: Sony New Product Launch

Sunday April 19, 2015

- Retail Experiments and Online Advertising

HOMEWORK DUE: Hope Digital Advertising Decision

Monday April 20, 2015

- Analytics for New Products

HOMEWORK DUE: Black Friday

Take Home Exam: DUE: Sunday May 10

Day 1: Pricing and Promotion Analytics

Introduction to Retail Data Analytics

Required Readings

The Future of Pricing, Andrew Boyd, Chapter 1 (“A Revolution in the Making”) and Chapter 10 (“The State of Pricing”)

“Is it Time to Rethink Your Pricing Strategy?” *Sloan Management Review*, Summer 2012, Hinterhuber and Liozu, Vol 43, No. 4.

Homework

Energy Bar Pricing and Merchandising

Optional Readings on Canvas

“The Pricing Paradox: Benchmark Report 2014,” RSR

“How Sears Uses Big Data to Get a Handle on Pricing,” Rachel King, CIO Journal, June 14, 2012.

“PepsiCo rethinks U.S. pricing to attract more everyday buyers,” May 2013.

“The Walmart Slayer,” Brian Solomon, *Forbes*, August 12, 2013.

“Marketing: Less Guff More Puff,” *The Economist*, May 2013

“Knowing the Cost, the Customer Sets the Price,” *New York Times*, March 27, 2012.

“Ditch the Discounts” HBR Jan-Feb 2011

Day 2: Customer Value and the Market Simulator

Energy Bar Debrief

Customer Value Analysis

Required Readings

“Value Creation,” The Strategy and Tactics of Pricing, Nagle and Hogan, 5th Edition, Chapter 2

“Market Simulators for Conjoint Analysis”, Chapter 10 in Orme (2006), *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research*.

“Market Simulator Users Guide”, Eric Anderson, 2015

Homework

Sony Television Launch

Optional Readings on Canvas

Testimony in Samsung Apple Trial

“Shedding the Commodity Mindset” Forsyth et al., *The McKinsey Quarterly*, 2000(4).

“Why Cree Marketed its Green Lightbulbs Without Mentioning 'Green',”
Forbes.com, April 16, 2014.

“Inside the Phone Plan Pricing Puzzle,” Thomas Gryta, *Forbes*, August 1, 2013.

Day 3: Retail Experiments and Online Advertising

Debrief on Sony Television Launch

Discussion of Apple-Samsung Lawsuits

Retail Online Advertising Experiments

Required Readings

“A Step-by-Step Guide to Smart Business Experiments”, Anderson and Simester (2011), *Harvard Business Review*

“Online Ads and Offline Sales: Measuring the Effect of Retail Advertising via a Controlled Experiment on Yahoo!” Lewis and Reiley, *Quantitative Marketing and Economics*, 2014.

Homework

Hope Digital Advertising Decision

Optional Readings on Canvas

“Uber's Travis Kalanick Explains His Pricing Experiment,” *New York Times*, July 11, 2014.

“We Have No Idea if Online Ads Work,” *Slate.com*, June 17, 2014.

“A Dangerous Question: Does Internet Advertising Work at All?,” *The Atlantic*, June 13, 2014.

“Consumer Heterogeneity and Paid Search Effectiveness: A Large Scale Field Experiment,” Blake, Nosko, and Tadelis, 2014.

“Here, There, and Everywhere: Correlated Online Behaviors Can Lead to Overestimates of the Effects of Advertising”, Lewis, Rao, Reiley 2011.

“Big Retailers Put Testing to the Test”, McCann (2010)

“Amazon Pays a Price for Marketing Test,” *Los Angeles Times*, Oct 2, 2000.

Day 4: Analytics for Unstructured Retail Data

Debrief on Hope Digital Advertising Decision
Discussion of Attribution Analysis
Text Analysis and Customer Reviews

Required Readings

“Analysis of Unstructured Data Applications of Text Analytics and Sentiment Mining”, Goutam Chakraborty and Murali Krishna Pagolu, support.sas.com/resources/papers/proceedings14/1288-2014.pdf
“Reviews Without a Purchase: Low Ratings, Loyal Customers, and Deception,” Eric Anderson and Duncan Simester, *Journal of Marketing Research*, 2014

Homework

Black Friday

Day 5: Analytics for New Products

Debrief on Black Friday
Analytics for Launching New Retail Products
Discussion of Keurig At Home

Required Readings

Keurig at Home: Managing a New Product Launch (Kellogg Case)

Homework

Take Home Exam: Due Sunday May 10

Optional Reading on Canvas

Keurig: From David to Goliath, The Challenge of Gaining and Maintaining Marketplace Leadership (Kellogg Case)

Contents of Course Packet

1. The Future of Pricing, Andrew Boyd, Chapter 1 (“A Revolution in the Making”) and Chapter 10 (“The State of Pricing”)
2. “Is it Time to Rethink Your Pricing Strategy?” *Sloan Management Review*, Summer 2012, Hinterhuber and Liozu, Vol 43, No. 4.
3. “Value Creation,” The Strategy and Tactics of Pricing, Nagle and Hogan, 5th Edition, Chapter 2
4. “Market Simulators for Conjoint Analysis”, Chapter 10 in Orme (2006), *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research*.
5. “Market Simulator Users Guide”, Eric Anderson, 2015
6. “A Step-by-Step Guide to Smart Business Experiments”, Anderson and Simester (2011), *Harvard Business Review*
7. “Online Ads and Offline Sales: Measuring the Effect of Retail Advertising via a Controlled Experiment on Yahoo!” Lewis and Reiley, *Quantitative Marketing and Economics*, 2014.
8. “Analysis of Unstructured Data Applications of Text Analytics and Sentiment Mining”, Goutam Chakraborty and Murali Krishna Pagolu, support.sas.com/resources/papers/proceedings14/1288-2014.pdf
9. “Reviews Without a Purchase: Low Ratings, Loyal Customers, and Deception,” Eric Anderson and Duncan Simester, *Journal of Marketing Research*, 2014
10. Keurig at Home: Managing a New Product Launch (Kellogg Case)

**Schulich School of Business
Minutes of Faculty Council**

A regular meeting of Faculty Council for the 2016-2017 academic year was held on
Friday March 17th 2017 at 11:30am in room SSB E111.

In Attendance: J. McKellar, Chair
E. Rush, Secretary

Voting Members of Faculty Council Present:

Senior Administration	D. Horváth, M. Annisette, T. Beechy, M. Biehl, M. Judd		
Student Council Reps	F. Paul, A. Simpson		
ACTG			
ARTM/NMLP			
BSUS			
ECON			
FINE	Y. Larkin, M. Milevsky, L. Ng		
MKTG	E. Fischer, M. Giesler, A. Joshi, E. Veresiu, D. Zwick		
ORGS	K. Tasa, L. Wright ,		
OMIS	A. Diamant, R. Irving, M. Kristal		
PLCY	B. Eberlein, M. Kipping		
PROP		OTHER:	

Voting Members of Faculty Council Absent:

P. Aulakh	Y. Deutsch	M. Levesque	F. Paul (GBC)	H. Tan
E. Auster	D. Dimick	S. Li	E. Prisman	L. Thorne
K-H. Bae	M. Dong	Z. Li	S. Qu	V. Trivedi
R. Belk	J. Everett	P. Lyman	M. Rice	A. Tsang
A. Bialas (GBC)	M. Farjoun	I. Macdonald	G. Roberts (ret)	M. Valente
S. Bury (Library),	B. Graham (Alumni)	A. Madhok	H. Rosin	L. Velloso (Ph.D)
A. Campbell	C. Graham	D. Matten	P. Sadorsky	E. Waitzer
M. Cao	I. Henriques	A. Mawani	W. Sheremata	M. Waller
J. Chung	S. Hsu	R. McClean	P. Shum	S. Weiss
W. Cook	K. Kanagaretnam	J. McKellar	P. Singh	T. Wesson
W. Cragg	A. Kecskes	C. McMillan	O. Sinopoli (UBS)	E. Westney
A. Crane	H. Kim	D. Neu	A. Sirsi	B. Wolf
D. Cumming	G. Kistruck	T. Noseworthy	J. Smithin	S. Yeomans
P. Darke	A. Kuzmicki	C. Oliver	M. Szaki	C. Zietsma
A. deCarufel	F. Lazar	Y. Pan	H. Tahavori (UBS)	

Regrets, Leaves, Sabbaticals (*):

C. Bell	M. Kamstra*	E. Maynes (LOA)	Y. Tian
A. Bhanich-Supapol*	G. Graham (Alumni)	G. Morgan*	D. Thomassin-Sing (LOA)
J. Darroch	D. Johnston*	T. Peridis	J. Zemans
B. Gainer	R. Karambayya*	J. Tan	

Non-Voting Members of Faculty Council Present:

I. Holzinger	A. Mustapha	S. Siddik
M. Lefranc	M. Orlan	H. Sinker
J. MacKay		

Non-Voting Members of Faculty Council Absent:

T. Anderson	P. Deonandan	I. Kanga	A. Middleton	C. Seeley
D. Bell	P. Dillon	L. Kharlip	R. Moy	G. Sue
M. Bhutani	E. Farrell	L. Korhani	S. Nahm	N. Sutherland
E. Caprioni	A. Gravel	R. Lynn	C. Niederwanger	S. Tenn
O. Carew	K. Gray	A. Makooie	Y. Oo	E. Wang
M. Cernea	L. Hillcoat	J. Mapa	C. Partland	D. Weitzner
G. Chen	R. Hines	R. Mayer	P. Pivato	D. Woticky
A. Choi	S. Hussain	T. Mcqueen	V. Raghunathan	J. Wu
T. D'Agostino	J. Jeyakumaran		B. Remes	F. Zandi

1. Welcome & Chair's Remarks

The Chair called the meeting to order and welcomed council members and guests.

2. Enquiries & Communications**a) For Information: Senate Synopses (2016.11.24, 2017.01.26, 2017.02.16)**

No questions or points of discussion were raised regarding this item.

3. Dean's Remarks

Dean Horváth provided the following updates on events in the Schulich community:

- The Dean welcomed incoming GBC President Allie Simpson and thanked outgoing President Frank Paul for all his work.
- He also highlighted new additions to Schulich's Faculty, including Avis Devine to the Master of Real Estate & Infrastructure Program and Brent Lyons to the ORGS Area. He then provided an update on new positions.
- In January the Dean travelled to Davos for the global launch of the book *Re-Imagining Capitalism*. He will soon be travelling with Matthias Kipping to London for another book launch event.
- The MREI program was successfully launched in January.
- Schulich's Research Day took place on January 26th. Approximately 70 people showcased their research and the event was very well attended. An award for lifetime achievement in research was given to Christine Oliver.
- The Hennick Centre award Medal was given to Carol Hansell.(JD/MBA '86).
- The EQUIS accreditation will take place April 4th-6th. The Dean also recently travelled to Peru to serve as part of another school's EQUIS accreditation.
- On February 28th, the university's Board of Governors appointed Vice-President Academic & Provost Rhonda Lenton as the next president of York.
- The recent Experience Schulich event was a success. Approximately 420 people were registered, indicating a high degree of interest. There was also a lot of interest in the upcoming Master of Marketing degree.
- The Alumni Recognition Awards Dinner will take place on April 6th. The Dean encouraged faculty to attend.
- The graduate formal will take place on April 21st and the undergraduate formal will take place on April 25th. The Dean also encouraged faculty to attend these events.
- The Alumni Connect event will take place on April 29th.

4. PHD/GBC/UBC Initiatives

GBC President F. Paul introduced the incoming GBC President Allie Simpson. He also thanked council members for their support during the year. The Chair thanked F. Paul and indicated it had been a pleasure working with him.

The UBS and the PhD Students' Association representatives were not in attendance.

5. BBA/iBBA Program Committee

a) **Motion: New Course Proposal for FINE 4060 3.00 – Advanced Personal Finance: Retirement Income Models**

A. Joshi moved for approval of this course. Seconded by A. Diamant. All in favour. Motion carried. The Chair praised the new offering, indicating that it looked like a very useful course.

6. PhD Program Committee

a) **Motion: PhD Program Change (OMIS field)**

E. Fischer presented the motion and rationale for the change to the OMIS field of the PhD Program. Seconded by M. Kristal. E. Fischer congratulated the OMIS area for their efforts on the proposal. All in favour. Motion carried.

b) **Motion: New Course Proposal for OMIS 7200 3.00 – Strategic Operations Management II**

Motion: New Course Proposal for OMIS 7985 3.00 – Research Methods in Operations Management and Information Systems

E. Fischer moved to approve the two new course proposals simultaneously as they both stem from the PhD Program change. Seconded by M. Biehl. All in favour. Motions carried.

7. Other Business

a) **Motion: Delegating Approval of the Potential Graduated List to the Associate Dean, Students**

M. Biehl moved for approval of this item. Seconded by A. Joshi. M. Biehl explained that it is difficult for Faculty Council members to verify whether students have met the requirements to graduate. After investigating practices with Senate, he learned most faculties have delegated this power to the appropriate Associate Dean. All in favour. Motion carried.

b) **For Information: Final Version of Proposal for Changes to Masters Programs Admission Standards (as approved by Senate in February 2017)**

M. Biehl indicated that this item was included simply as an update to the Council. Small changes were made as the item moved through the approval process, so the final version is included for record-keeping purposes. No questions or points of discussion were raised regarding this item.

c) **Updates on Schulich and University Initiatives**

M. Biehl requested the opportunity to update Faculty Council on a number of other initiatives occurring within Schulich. The LMS committee has selected a new system and it is in the process of checking the vendor's references and negotiating the contract. The committee is aiming to pilot it over the Summer term. A large amount of content will also need to be

transported from the CMD over the Summer term so that the system is ready to go for the Fall term. The system offers many new features and it will be a major upgrade for Schulich.

M. Biehl indicated that the university is moving ahead on the upgrade to Microsoft Office 365 and is aiming to implement it later this year. He also indicated that UIT is selectively replacing some of the classroom IT equipment. J. McKellar then indicated the AV equipment in this building will be updated as the equipment for the new building is put in place.

The Dean informed the council that the carpets will also be redone this summer and that construction of the new building is on schedule (with a projected completion date of next March). The Pond Road residence will open in September and the subway is on schedule to open at the end of the year.

J. McKellar updated council members on the Developer's Den event that took place recently. The Schulich MREI team placed third out of twenty-one teams in the competition after having been at the school for only seven weeks, a testament to the quality of the students and the program.

M. Biehl reminded Council members that Course evaluations will soon be taking place. He asked Council members to remind students to fill them out as Schulich has recently seen a drop in the response rate. He also reminded faculty that Faculty Council policy requires instructors to set aside class time for students to complete the evaluations. He thanked faculty for their help in this regard.

8. Adjournment

F. Paul moved to adjourn. Seconded by A. Joshi. All in favour. The meeting adjourned.

Consent Agenda

The following items were approved by consent:

- 1. BBA/iBBA Program Committee**
 - a) Curricular Changes**
 1. MGMT 1030 3.00 – Business History (course title, description, position in curriculum)
 2. MGMT 1040 3.00 – Ethics, Social Responsibility and Sustainability in Business (course number, position in curriculum)
 3. FINE 3200 3.00 – Investments (course description)
- 2. Master Programs Committee / Programs Coordinating Committee**
 - a) Curricular Change**
 1. FINE 6200 3.00 – Investments (course description)
- 3. PhD Program Committee**
 - a) Curricular Changes**
 1. FINE 7100 3.00 – Theory of Finance (course title)
 2. FINE 7200 3.00 – Topics in Finance I (course title)
 3. FINE 7300 3.00 – Topics in Finance II (course title)
- 4. EMBA Program Committee**
 - a) New Course Proposal** for EMBA 6290 2.00 – Management in Data Driven Business Environment
- 5. Minutes of the Last Meeting (2016.12.09)**