MBAN 5220 F 3.00: Data Management and Programming II

Course Outline
Winter 2015

Mondays, 2:30-5:30pm, beginning on January 11, 2016
S128 SSB

Instructor
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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 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.

Prerequisite(s): MSBA 5120 1.50

Contents

Course Learning Outcomes

This course starts where Data Management and Programming I left off. It teaches higher-level techniques for manipulating data and introduces debugging. Like its predecessor, 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)	<u>Controlling Input and Output</u> • Outputting multiple observations • Writing to multiple SAS data sets • Selecting variables and observations Read: 1. Chapter 1 from the course manual
January 18 (2)	<u>Summarizing Data</u> • Creating an accumulating total variables • Accumulating totals for a group of data Read: 1. Chapter 2 from the course manual Assignment #1 is handed out
January 25 (3)	<u>Reading Raw Data Files</u> • Reading raw data files with formatted input • Controlling when a record loads • Additional techniques for list input Read: 1. Chapter 3 from the course manual
February 1 (4)	<u>Data Transformations</u> • Manipulating character values • Manipulating numeric values • Converting variable types Read: 1. Chapter 4 from the course manual **Assignment Due:** ▪ ***Assignment #1***
February 8 (5)	<u>Debugging Techniques</u> • Using the PUTLOG statement

DATE/WEEK	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
	• 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> • DO loop processing • SAS array processing • Using SAS arrays Read: 1. Chapter 6 from the course manual **Assignment Due:** ▪ ***Assignment #2***
February 29 (7)	**<u>Midterm Exam</u>**
March 7 (8)	<u>Restructuring a Data Set</u> • 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> • 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
March 21 (10)	<u>Other SAS Languages continued</u>
March 28 (11)	<u>Other SAS Languages continued</u>
April 4 (12)	<u>Creating Graphics Using SAS/GRAPH</u> • General introduction to SAS/GRAPH

DATE/WEEK	TOPIC(S)/ASSIGNED READING(S)/ASSIGNED WORK DUE
	• Creating bar and pie charts • Creating plots • Enhancing your output Read: 1. Chapter 9 from the course manual **Assignment Due:** ▪ ***Assignment #3***

Written Assignments/Projects and Exam[s]: Descriptions

Due Date	
February 1 February 22 April 4	Assignments 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%. *Value: 3 x 10% = 30%* Late Delivery: The students will lose 5% of their assignment grade for every day an assignment is delayed.
February 29	Midterm Exam 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. *Value: 30%*
Please refer to the Exam Schedule	Final Exam 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. *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, 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/.

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_lnd_webstation.nsf/page/Enrolment+-+MBA+Exam+Schedule?OpenDocument