**ECON 2610**

**Economic Analytics**

**Course Outline**

**2016**

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| Location | 202 Isbister (Social Science Lab) |
| Time | Tuesday/Thursday 10 am – 11:15 am |
| Instructor | Greg Mason |
| Office Hours | 12:00 – 1:00 (Tuesday and Thursday) 557 Fletcher Argue |
| Contact phone | 204 474-8670 |
| Contact e-mail | [gregory.mason@umanitoba.ca](mailto:gregory.mason@umanitoba.ca) (This is the **only** e-mail contact I will accept) |
| Course outline | <http://gregorymason.ca/courses/> (updated periodically) |
| Power Point Lecture Notes  Examples | UMLearn |

**Economic Analytics**

The term “analytics” refers to numerical/statistical methods to

1. **Describe** the current states of society and environment
2. **Predict** the course of these states
3. **Optimize** these states according to goals defined by decision makers according to norms and objectives.

The course introduces students to how analytics apply to economics using Excel as the analytical framework.

**Learning objectives**

1. To increase the numerical capacity and confidence of students to apply analytics to the understanding of the economy
2. To prepare students for more advanced courses in quantitative economics
3. To offer students training in problem solving using approaches (Excel) as practiced by professional economists.

**Outline**

This course will introduce basic economic measures and computations such as index numbers, cost relationships, time-value of money, rates and growth, seasonal adjustment, forecasting and measures of inequality. We will introduce the use of Solver in Excel in the context of economic models such as demand-supply and linear programming. Students will learn basic data management, data transformation, and graphing using the features of Excel.

In addition to mastering the core measures of economics, students will gain proficiency in Excel, the most important analytical tool used in business and government. It is also a powerful method for supporting data analysis and economic modelling in more advanced economics courses and business courses. At the conclusion of this course, students will have a library of Excel programs to support common economics and business measurements/calculations

**Approach**

Lectures and labs will present the measurements and computations used in micro, macro, and business economics. No prior knowledge of Excel is required – lectures and labs offering extensive opportunity to learn and practice this important tool. The lectures will occur in the social science computer lab (202 Isbister).

You must have a current U of M email id, and all materials appear on UMLearn. Make sure you have a valid U of M email id and understand the features of UMLearn

Students must acquire familiarity with Excel early in the course. Videos and other training materials appear on the course site under UMLearn.

About Excel

This course will use Microsoft Excel 2013. All open computer areas throughout the university, including 202 Isbister have this installed. It is available for a very low price through the Computers on Campus for your own notebook. This software is on all open computer areas throughout the campus.

Communication

I will only use university assigned email to communicate to the class as a group and to individual students. Please do not send questions using your personal e-mail and only use the e-mail above for me. I will ignore all messages sent to other email addresses..

Text

All course materials are available under the course listing on UMLearn. You must register in the course to access the PowerPoint slides for lectures and problems that are available under the course designation.

There are no formal course texts, but students should acquire a solid text in Excel. I like and will be referencing

* *Excel 2013: the missing manual*, Matthew MacDonald, O’Reilley Press

You will use this book for several years and will include most of the updates for Excel 2016. The easiest way to get these references is through Amazon. (These typically costs $40 Canadian and students receive free two day shipping … do it now!!!)

What about Excel on a Mac?

The Microsoft emulations available within the Mac (Apple) using Parallels and MS Office using VMWare will work, but not all formulas and functions may be available. Since the PC and Windows is the environment of choice in industry and government, and since the lectures, examples and exams will be submitted using the PCs in 202 Isbister, Apple users/owners should make their peace with the PC.

Retaining your work

You will find it convenient to maintain your work and notes using USB memory devices or cloud storage such as Dropbox. You can also maintain a Locker in UMLearn, but be aware that access to the course ends after the course concludes. Keep your own back-ups of all your work, solved examples, etc.

**Term Tests, the Final Exam, and Marking**

Test Format

Exams/tests are open and downloaded from UMLearn. All tests/exams will allow you to have the Excel texts of your choice for reference as well as your class notes. The on-line Excel help files are also available. You may access any resource on the Internet, UMLearn, your own notes, etc. except consultations with colleagues. But you cannot use phones as calculators (these must be off during the exam) and you cannot consult with anyone.

Mark Allocation

The final mark will be based on snap quizzes (bests 3 out of 4) (of about 15 minutes duration and randomly occurring without notice), 60 minute in-class term tests (best 2 out of 3), and a final examination.

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| **Component** | **Marks** |
| **Quizzes (15 minute snap quizzes) (3 at various unannounced times throughout the course) (Best 2 out of 3)** | **20** |
| **Term Tests (Best 1 out of 2) – 30 marks each** | **30** |
| **Final exam (2 hours) (In formal exam period)** | **50** |
| **Total** | **100** |

Numerical grade conversion: A+ (>90), A (>80), B+ (>75), B (>70), C+ (>65), C(>60), D (>50), F(<50)

Marking Philosophy

I will “curve” the cumulative score from all snap quizzes, term tests and the final. If the mark on the final is higher than the cumulative score in all quizzes and term tests, I will use the final exam as the only source for the letter grade. If your final has a lower score than your work to that point, I will combine all quizzes/tests to obtain the final numerical grade.

How to fail this course

This course moves quickly and is cumulative. If you do not keep up with the course, you will not be able to make-up just before or during the exam. No one would ever train for a marathon by practicing sprints the night before the race.

Missed exams

I do not schedule make-ups for snap quizzes and term tests, which is why I will only count two out of three quizzes and one of the two term tests. Please do not offer a medical note and request a “make-up” for a snap quiz or term test.

If you miss the final exam due to illness, do not contact me; you must apply for a deferred exam through the Faculty of Arts. You will be required to supply medical documentation to the Faculty.

Assigned seating

After the registration revision period (xxxx), all students will be assigned a numbered seat. Please sit in that seat for all classes and exams. Attendance will be noted for each class and lab and I will call on students by name to respond to questions each class. This seating assignment will allow me to learn your names more quickly and to check attendance for quizzes and exams.

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| **Academic integrity:**  Each student must read and understand university regulations regarding academic integrity as described in the General Calendar.   * Plagiarism and Cheating - <http://webapps.cc.umanitoba.ca/calendar10/regulations/plagiarism.asp> * Personation at an examination <http://webapps.cc.umanitoba.ca/calendar10/regulations/exams/exams_personations.asp>   **Claims that these regulations were not understood will not be accepted.** |

**Course Schedule**

The course will generally follow an alternating schedule of lectures (Tuesdays) and labs (Thursdays).

The first class (September 6, 2016) will comprise an orientation to the Social Science Lab and Excel If you register later or transfer in from another course after the start of classes, you will need to catch up on your own using the referenced material.

The lab days are essential to mastering the techniques learned in class.

| Lecture Outline (Subject to change) | | |
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| **Module 1 Basic Excel techniques** | | |
| Lecture 1 | Sep 6 | *Lecture: Navigating the spread sheet, work sheets, copying/pasting data, and using formulas/functions*  Excel: Formulas and Functions, Graphing data and formulas |
| Lecture 2 | Sep 8 | *Lecture: Measuring changes (% change, log change, per capita measures, index numbers)*  Excel: Tricks in using price indexes and moving averages. Installing and using the Data Analysis Add-in |
| **Module 2 Describing the Economy: Measuring Change, Significance and Importance** | | |
| Lecture 3 | Sep 13 | *Lecture: Seasonal adjustment and trends*  Excel Charts with trends, seasonal adjustment, moving averages |
| Lab 1 | Sep 15 | Lab – Examples and problem practice |
| Lecture 4 | Sep 20 | *Lecture: Measures of central tendency, variation, and unusual observations*  Excel: AVERAGE, MEDIAN, RANGE, VAR.P, STDEV.P |
| Lab 2 | Sep 22 | Lab – Examples and problem practice |
| Lecture 5 | Sep 27 | *Lecture – Basic probability distributions*  Excel: STANDARDIZE, MIN, MAX, BINOMIAL.DIST, NORMAL.DIST, LOGNORMAL.DIST |
| **Term Test 1** | **Sep 29** | **(Lectures 1 – 5) 202 Isbister 10:05 – 11:05** |
| Lecture 6 | Oct 4 | *Lecture – Regression (The principle of least squares)*  Excel: Data analysis, FORECAST, TREND, LINES, Array functions |
| Lab 3 | Oct 6 | Lab – Examples and problem practice |
| **Module 3 Predicting Outcomes: Financial Economics and Forecasting** | | |
| Lecture 7 | Oct 11 | *Lecture: Time Value of Money – present/future values, loans, mortgages*  Excel: Financial formulas PV, FV, PMT, PPMT |
| Lab 4 | Oct 13 | Lab – Examples and problem practice |
| Lecture 8 | Oct 18 | *Lecture: Economic decisions – capital budgeting, internal rate of return, depreciation, and cost-benefit analysis*  Excel: IRR DB, DDB and “What-if analysis” |
|  | Oct 20 | Lab – Examples and problem practice |
| Lecture 9 | Oct 25 | *Lecture – Regression 1 (The principle of least squares)*  Excel: Data analysis, , LINEST, Array functions |
|  | Oct 27 | Lab – Examples and problem practice |
| Lecture 10 | Nov 1 | *Lecture – Regression 2 (Projection and forecasting)*  Excel: FORECAST |
| **Term Test 2** | **Nov 3** | **Lectures (6 – 8) 10:10 – 11:10** |
| **Module 4 Optimizing Society and the firm** | | |
| Lecture 11 | Nov 8 | *Lecture:**Creating a tax table, average and marginal tax rates; modeling the impact of a tax change*  Excel – Logical functions in Excel (IF, AND, OR, nested IF, NOT, IFERROR, IS functions, VLOOKUP) |
|  | Nov 10 | Lab – Examples and problem practice |
| Lecture 12 | Nov 15 | *Lecture – Measures of inequality*  Excel – Lorenz and Gini functions in Excel |
|  | Nov 17 | Lab – Examples and problem practice |
| Lecture 13 | Nov 22 | *Lecture: Demand, supply, elasticity, and total revenue*  Excel –Solver add-ins |
| Lab | Nov 24 | Lab - Examples and problem practice |
| Lecture 14 | Nov 29 | *Lecture Linear Programming 1* |
|  | Dec 1 | Lab - Examples and problem practice |
|  | Dec 5 | **Review** |
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| ***Final exam to be scheduled by registrar (The Final will be based on the entire year)*** | | |