

**UNIVERSITY OF MANITOBA
DEPARTMENT OF ECONOMICS**

**ECON 2050. ECONOMIC ANALYTICS USING COMPUTER-BASED METHODS
(AN ON-LINE COURSE. NO FORMAL LECTURES)
COURSE CREDIT HOURS: 3**

FALL 2018

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Office Hours: Tuesdays 1:00 – 3:00
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OVERVIEW

This course introduces 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. You will learn basic data management, data transformation, and graphing using the features of Excel.

In addition to mastering the core measures of economics, by taking this course you will gain proficiency in Excel, one of the most important analytical tools 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. After taking this course, you will have a library of Excel procedures that support common economics and business measurements/calculations.

COURSE OBJECTIVES

By taking this course you will:

- Learn how to apply economic and business analytics to a wide range of common challenges faced by researchers as used in academia, industry, and government research;
- Understand how Excel can support the development of economic and business models/metrics to support performance measurement, forecasting, and simulation;
- Gain confidence in teaching yourself more advanced excel techniques to manage complex data and to develop solutions to unique problems.

WHAT DO YOU NEED TO START?

You need to have completed six credit hours of economics at the first-year level (ECON1010, ECON1020, ECON1210, or ECON1220) or equivalent. You also need to remember your high school algebra.

You do not need Excel to take this course. You should know your way around a computer, either a PC or a Mac.

You will need access to the internet at a reasonable speed (not dial-up). You can use the [common area computer labs](#) around campus. Most of you will have your own PC or Mac. This will make learning more convenient, but it is not necessary; you can use the labs on campus. Also, you will need to install Office on your computer, which you may purchase on-line from [Computers on Campus](#) for less than \$20 or use Office 365.

Caution: The Mac implementation of Office (and therefore Excel) is good but not perfect. Since all you will write all tests using computers in the common lab areas, those using Mac to complete this course should gain some practice on a PC in one of the common areas.

Mac users may need to download and install [VLC Media Player](#) to properly see the videos posted by the instructor.

This course requires you have the physical ability to use a standard PC or Mac (notebook or desktop), which means the ability to "keyboard", visualize detailed information on screen, navigate to web sites, and input complex alphanumeric information within specified time constraints of the tests. If believe you may have trouble doing this, please consult with [Student Accessibility Services](#) to determine whether accommodations are possible.

HOW IS THIS COURSE DIFFERENT FROM A CONVENTIONAL COURSE?

- **There are no formal lectures** and no time the entire class meets in one place except for the tests shown in the **learning schedule** (which you can find below). This is part of the training needed to become an independent learner and maintain your own learning schedule.
- You can decide to learn everything at once by going through all the coursed materials, **but...**
- Most of you will find it better to following the learning schedule (below).

This course runs through [UMLearn](#). Once you register for this course, and have a valid University of Manitoba e-mail account, you will be able to access course materials and tests. After you are logged into UMLearn, click on the course (ECON 2050) icon to find the course modules which will include Voice over PowerPoint, videos, examples, exercises and answers.

Students must know the procedures and processes used by UMLearn. You may learn this system using the [Instructional videos](#). (You must have a valid account at the University of Manitoba to access this material. Contact [Information Services and Technology](#) for assistance).

It is your responsibility to learn how to use UMLearn and to check UMLearn for course announcements, handouts, and the like.

HOW WILL WE COMMUNICATE?

My job is to help you learn, even though we do not meet in a lecture. Here are the ways you can meet me and discuss any aspect of this course.

- E-mail. Please use rodrig21@myumanitoba.ca. **I will only communicate with you using the university approved e-mail system. Do not contact me using your personal e-mail, I will ignore these messages.**
- The course site also has a discussion board where you can post questions.
- My office hours are 1:00 – 3:00 on Tuesdays. Please visit me if you are having any problems or concerns about the course.

ADDITIONAL RESOURCES

You should consider purchasing an advanced Excel manual such as: *Excel 2016: the missing manual*, Matthew MacDonald, O'Reilley Press. This will be a handy reference for several years.

There are many YouTube videos on Excel, some good, others not so much. Use at your discretion.

TEST FORMAT

All tests and the final exam occur exactly at the date and time specified in the learning schedule (see below) and in a designated lab. Just before the first term test you will be assigned to a lab, which will remain the same for all term tests and the final exam.

Once in the lab, exams/tests are opened and downloaded from UMLearn. You will be able to bring any notes and books to class, consult all the material for this course under UMLearn and use any internet resource to answer questions on the tests and exam.

Also notice:

- The test is available only on the specified date and within the time.
- The tests and final exam are downloaded from the UMLearn Dropbox. You must learn how to do this – a video explains how to do this.
- The tests can only be completed at the assigned terminals in the common area labs on the Fort Garry campus. You will be assigned to a specific room and seat number prior to each term test and the final. This will be your place for all tests and the final exam.
- Plan to arrive at your assigned terminal 10 – 15 minutes early to make sure it is working properly. This includes verifying that Excel works, it has the add-ins needed, and that you can download and upload the practice test.
- You cannot use your own computer to complete and submit a test or final exam.
- You cannot consult (talk, text, or e-mail) with anyone during the test – this will result in a score of 0.

- You cannot use your phone during the test or final exam for any reason – this will result in an immediate score of 0.
- I will allow only conventional calculators so you can check your work
- Make sure you understand the [University policy on cheating and plagiarism](#).

Under no conditions will I accept a test or final exam outside the test/exam period or outside the Dropbox/Assignment process in UMLearn.

If you fail to upload your exam within the set time, you will get 0. I will not accept the test by e-mail. Save and upload at several times in the test/exam period.

ACADEMIC INTEGRITY

Each student must read and understand university regulations regarding academic integrity as described in the General Calendar ([Plagiarism and Cheating](#) (Section 8.1) and [Personation at an examination](#) (Section 5.2.9)).

Claims that these regulations were not understood will not be accepted.

During the term tests and final exam, you must not communicate with anyone by any means or share your test. We have security processes to detect such cheating.

ASSESSING YOUR PERFORMANCE

The final mark will be based on 60 minute in-class term tests (best 3 out of 5), and a final examination.

Component	Marks
Term Tests (Best 3 out of 5)	50
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)	

I use the table above to determine the final grade. But to give you the best chance of getting a good mark, I also use the following rule:

Provided you submit three term tests, if the mark on the final is higher than the cumulative score on the term tests, I will only use the final exam to create the letter grade.

If the final exam has a lower score than your cumulative score on the tests, I will combine the term tests and final exam using the above mark allocation to obtain the final numerical grade.

You must take and submit at least three term tests to benefit from this offer.

POLICY ON MISSED TERM TESTS AND FINAL EXAM

You cannot repeat a missed term test, therefore only 3 of 5 term tests count toward the final mark. Please do not ask for an exception for any reason. It will not be granted.

If you miss the final exam, you must apply to the Dean's office for permission to write a deferred exam. Only valid medical reasons (with a note from a health practitioner) are usually accepted as the basis for such a deferral.

HOW TO SUCCEED IN THIS COURSE

The term tests anchor the course, the first of which occurs after two weeks. The material is cumulative and you will not be able to master the material the night before.

Here is how to succeed:


- Work through the lectures and watch the videos according to learning schedule
- Review and repeat
- Try the exercises before looking at the answers. This is how you can know whether you understand the material
- Form a study group with colleagues in the class
- Retain all your work including previous term tests in your UMLearn Locker. This will be available to you in the tests and exam.


ADDITIONAL INFORMATION

- Students appealing any term work, whether it be an informal or formal appeal, must appeal their term work within 10 working days of receiving their mark.
- Please refer to Schedule "A" provided here <https://umanitoba.ca/statistics/files/pages/2016/09/Schedule-A-ROASS-Statistics.pdf> for information on academic support, mental health support, copyright, and other supplemental information.

LEARNING SCHEDULE

Use the dates in the course schedule to manage your learning. Set aside a fixed time each week to work on this course, just as if you were taking lectures. For some this may be challenging. With the flexibility of an on-line course, comes the need for self-discipline.

Module Outline		
Progress Use these dates to check your progress 	Set aside 3 – 4 hours each week to learn the modules, watch videos, try the exercises, and practice on a computer. Everyone should also practice at a terminal in the Dafoe computer labs to make sure you understand how to use those systems.	
<i>Part 1 Basics - The first four modules contain a lot of material that will become second nature with practice</i>		
Module 0	Sept 7	Pre-requisites – Students should become familiar with the basics of excel. Watch the videos and try to replicate basic operations.
Module 1	Sept 11	Module Content: Navigating the spread sheet. Work sheets, copying/pasting data, and using formulas/functions Excel: Formulas and Functions, Graphing data and formulas, SUM
Module 2	Sept 18	Module Content: Measuring change. Percent change, log percent change, per capita measures, index numbers Excel: Using price indexes and moving averages, SUMPRODUCT, Naming Sheets, Formulas with Sheets
Test 1 (Mod 1 – 2)	Sept 20	2:30 pm - 3:30 pm, Room: ISBISTER 202
Module 3	Sept 25	Module Content: Statistics. Measures of central tendency, variation, and unusual observations Excel: AVERAGE, MEDIAN, RANGE, VAR.P, STDEV, IF, COUNT
Module 4	Oct 2	Module Content: Basic probability distributions Excel: STANDARDIZE, MIN, MAX, BINOMIAL.DIST, NORMAL.DIST, LOGNORMAL.DIST
Test 2 (Mod 1 – 4)	Oct 4	2:30 pm - 3:30 pm, Room: ISBISTER 202
<i>Part 2 Statistical Modelling and Forecasting – Most students will find the pace slows down a little for the rest of the course. You have the basics of Excel and will rapidly appreciate how it can apply to a wide range of economics and business problems.</i>		
Module 5	Oct 9	Module Content: Regression 1. The principle of least squares Excel: Data analysis, FORECAST, TREND, LINES, Array functions
Module 6	Oct 16	Module Content: Regression 2. Seasonal adjustment and trends Excel: Data analysis, Regression model of Data Analysis
Test 3 (Mod 1 – 6)	Oct 18	2:30 pm - 3:30 pm, Room: ISBISTER 202
<i>Part 3 Economic and business decisions</i>		
Module 7	Oct 23	Module Content: Time Value of Money – present/future values, loans, mortgages Excel: Financial formulas PV, FV, PMT, PPMT and logic functions

Module Outline		
Progress Use these dates to check your progress 		Set aside 3 – 4 hours each week to learn the modules, watch videos, try the exercises, and practice on a computer. Everyone should also practice at a terminal in the Dafoe computer labs to make sure you understand how to use those systems.
Module 8	Oct 30	Module Content: Economic decisions. Capital budgeting, internal rate of return, depreciation, and cost-benefit analysis Excel: IRR DB, DDB and cost-benefit ratios
Test 4 (Mod 1 – 8)	Nov 1	2:30 pm - 3:30 pm, Room: ISBISTER 202
Module 9	Nov 6	Module Content: Introduction to economic and business models – Demand and Supply Excel: Using SOLVER Caution: Using Solver is a little tricky
Module 10	Nov 13	Module Content: Inequality and taxation Excel: VLOOKUP to compute taxation tables. Plotting Lorenz curves and calculating the GINI
Test 5 (Mod 1 – 9)	Nov 22	2:30 pm - 3:30 pm, Room: ISBISTER 202
Module 11	Nov 27	Module Content: Taxation Excel: VLOOKUP to compute taxation tables
Module 12	Dec 4	Module Content: Linear Programming as the foundation of operations research. Translating common economic and business problems into the LP format Excel: Using SOLVER for optimization. Caution: Students find this module a little harder to digest
The Registrar will schedule the Final Exam during the normal exam period (Dec. 10 to 21, 2018). The Final Exam will test your understanding of all Modules.		