ST. FRANCIS XAVIER UNIVERSITY

ECONOMICS

Econ 372: Econometrics II

F. SUMMERFIELD
Email: fsummerf@stfx.ca

WINTER 2020

Office Hours: MULH 3071

Tuesday	15:30 – 16:30;
Wednesday	13:00 – 15:00;
Friday	13:00 – 14:00

Lectures: MULH 3024

Wednesday	15:45 – 17:00
Friday	14:15 – 15:30

COURSE DESCRIPTION

The course will introduce students to advanced topics in Econometrics – the empirical side of economics. The course will combine theory, from which we derive estimators and detail their correct application, and practice, when we will work with real world data. Topics covered will include the matrix representation of OLS estimation, misspecification and measurement error, and Instrumental Variables. We will also cover the basics of time series econometrics.

COURSE MATERIALS

LECTURE NOTES

Lectures will follow the textbook, with additional content in notes only on time series. Students are responsible for lecture content. Absence is not grounds for relief of this responsibility.

TEXTS

Required: (JW) "Introductory Econometrics" (6th ed) by: Jeffrey Wooldridge.
This is a widely-used textbook and used editions should be easy to obtain. Please note that earlier editions (4th or 5th) should also be fine.

REQUIRED SOFTWARE

STATA and **MATLAB**– this software is available on all lab computers campus wide. You may choose to obtain your own copy, or you may substitute for either using another scientific computing package that you are familiar with. However, I am able to help answer specific questions primarily with respect to these two packages.

COURSE OUTLINE & REQUIRED READINGS from JW*

Part A)	**OLS CONTINUED**	**(5 Weeks)**
	Matrix Representation	**Notes/Apx E**
	Introduction to Matlab	**Notes**
	Misspecification	**Ch 9-1, 9-2**
	Measurement Error	**Ch 9-4, 9-5**
	Maximum Likelihood**	**Notes**
Part B)	**INSTRUMENTAL VARIABLES**	**(1.5 Weeks)**
	Causality and instrument choice	**Ch 15-1,15-2**
	Mechanics of IV and 2SLS	**Ch 15-3, 15-4**
	Testing in IV	**Ch 15-5**
Part C)	**TIME SERIES: BASICS**	**(1.5 Weeks)**
	Static Models, FDL trends and seasonality	**Ch 10-1, -2, -3, -5**
	Stationarity, dependence and MA processes	**Ch 11-1, Notes**
	OLS Asymptotics	**Ch 11-2**
	Serial Correlation and Efficiency	**Ch 12-1, -2, -3, -5**
Part D)	**TIME SERIES: DYNAMIC MODELS**	**(2.5 Weeks)**
	Autoregressive models	**Notes**
	ARMA models and forecasting	**Notes**
	Persistent Series, I(1) and differencing	**Ch 11-3, 18-2, 18-3**
	Volatility, ARCH and GARCH models	**Notes, Ch 12-6**
Part E)	**PANEL DATA (time permitting)**	**(2 Weeks)**
	Random Effects & Pooled OLS	**Ch 13**
	Fixed effects & Hausman Tests	**Ch 14**

*Please note that this schedule is approximate, and progression through the material may vary.
**Time permitting.

EVALUATION

Midterm Exam	In Class: Feb. 26th	30%
Review of a Paper	Short reports on papers using IV estimation: due March 13th	10%
Problem Sets (3)	Each worth 10% Due in class on the following dates: Jan 24th, Feb 7th, Mar 27th	30%
Final Exam		30%

EXAMS:

Students who miss the Midterm exam due to illness or compassionate reasons must contact the instructor before the next scheduled lecture to arrange to sit the exam no later than one week after the original sitting. If extenuating circumstances make this impossible, the weight of the midterm exam will be shifted to the final exam. The final exam for the course is cumulative and will cover material from the whole term. StFX policies apply to absence from final exams.

REVIEW OF AN EMPIRICAL STUDY:

Students will choose a paper from the list below and write a short targeted summary report. A substitute paper may be suggested, but this must be mutually agreed to with the instructor since the suggested papers cover particular topics and have been chosen to be appropriate for the level of the course material. Papers are to be approximately 500 words long, double spaced. The submitted paper should include the following sections: i) A brief intro to the paper describing the research question, the data used and the context, ii) the issue/challenge that IV estimation will solve, iii) an explanation of the instruments chosen and justification for why the instruments are relevant and valid, and iv) a brief summary of the results.

- L. Kahn (2010). "The long-term labor market consequences of graduating from college in a bad economy"*, Labour Economics*, 17(2), 303-316
- M. Lin (2008) "Does unemployment increase crime? Evidence from US data 1974–2000." *Journal of Human Resources* 43(2) 413-436.
- Miguel, E., Satyanath, S., & Sergenti, E. (2004). Economic Shocks and Civil Conflict: An Instrumental Variables Approach. *Journal of Political Economy, 112*(4), 725-753.
- Esther Duflo, Rohini Pande; Dams, *The Quarterly Journal of Economics*, Volume 122, Issue 2, 1 May 2007, Pages 601–646
- Altindag, D. C. Cannonier and N. Mocan (2011). "The Impact of Education on Health Knowledge." *Economics of Education Review*. 30(5), pp. 792-812
- Angrist, J., & Krueger, A. (1991). Does Compulsory School Attendance Affect Schooling and Earnings? *The Quarterly Journal of Economics, 106*(4), 979-1014
- Evans, William N. and Jeanne S. Ringel. (1999) "Can Higher Cigarette Taxes Improve Birth Outcomes?," *Journal of Public Economics*, 72 (1), 135 – 154.
- Knittel, C., D. Miller and N. Sanders. (2016) "Caution, Drivers! Children Present: Traffic, Pollution, and Infant Health." *Review of Economics and Statistics* 98, 350-366

PROBLEM SETS:

Problem sets will include a mixture of textbook questions and applied questions that make use of the statistical software packages STATA, and MATLAB. Please note that all of these software packages are available in the computer labs on campus. Problem sets will be distributed in class at least one week in advance of the due dates.

GRADING POLICY:

Although collaboration to solve problems is encouraged, each student **must submit their own** set of answers with explanations in their own words. Late problem sets or empirical study reviews will be penalized 20% per day. Aside from major health or compassionate grounds, there will be no exception to this grading scheme. When accommodation on these grounds would extend deadlines beyond a week, the weight of the assignment will be shifted to the final exam.

A note on winter closures:

It is not uncommon for the campus to be closed for safety reasons from time to time during the winter semester. In this case, due-dates and exams may have to be moved. Students should be prepared for this possibility.

In the event of a winter closure on the day of the midterm exam, the midterm will be held instead during the next lecture after campus re-opens.

In the event of a winter closure on an assignment due-date, assignments are due **by noon (12:00)** on the first full day that campus re-opens.