ECON*6710
Topics in Econometrics
Fall 2014
Credit weight: 0.5

General Course Information

Instructor: Professor Yiguo Sun

Email yisun@uoguelph.ca
Office Location 709 MacKinnon
Office Hours 9:00am-5:00pm on Mondays, otherwise email communications are preferred
Department/School Economics and Finance

TA's …

Email …
Office Location …
Office Hours …
…

Class Schedule: Tues & Thur
08:30AM - 09:50AM

Pre-requisites: Students should have taken ECON6180 and/or ECON6160 before taking this course. The students are required to be familiar with the basic statistic concepts and calculations such as expectation, variance, derivatives, convergence in probabilities, and to understand why the laws of large number (LLN) and central limit theorems (CLT) are important to the development of econometric theories in general. The first class will be allotted to review basic statistic concepts. Students can then decide whether the difficulty of this course is acceptable and whether they should take this course or not. If he/she has the impression that this course will be tough, but he/she is confident in overcoming it, then you are sitting at the right class.

Co-requisites: Among C++, Fortran, Gauss, Matlab, R (an open-source equivalence of Splus), or SAS, you may choose to learn any one of them. I will provide codes written in R. Even though you know nothing about R before, as long as you have some experiences in writing program codes, you should be O.K. All the assignments require programming, so make sure that you can learn one of the software quickly. (The R software is used in class. I am willing to help you to finish the first assignment.)

Course Description

The course is open for Ph.D. students whose major research field is Econometrics and who are interested in applying nonparametric/semiparametric techniques to their Ph.D. thesis. M.A. students with strong statistics background are also acceptable for this course. At the end of this semester, each student is required to independently finish his/her own project using the nonparametric techniques learned in class.

Indicative Content

The topics are to be covered:

(1) Kernel estimate of an unknown density function and its derivatives
(2) Nonparametric curve estimation
(3) Quantile regression models
(4) Nonparametric Hypothesis tests
(5) Semiparametric regression models
(6) Non-/semiparametric panel data models

Course Assessment

			Associated Learning Outcomes	Due Date/ location
Assessment 1:	*30%*	four assignments	Computer skills and econometric theories	TBA/In class
Assessment 2:	*30%*	two-in-class presentations	Oral presentations	TBA/In class
Assessment 3:	*40%*	A term project	Written Communication and computer skills	November 28
Total	**100%**			

Teaching and Learning Practices *(as appropriate)*

Lectures There are two formal lectures per week and the students are required to read pre-assigned materials before each lecture.

Labs There is no lab and I will provide after-class helps in my office.

Course Resources

Required Texts: I will distribute lecture notes before each lecture.

Recommended Texts:

(1) Li, Q. and J. Racine (2007). Nonparametric Econometrics. Princeton University Press. (In Library)
(2) Fan, J. and I. Gijbels (2003). Local Polynomial Modelling and Its Applications. Monographs on Statics and Applied Probability 66.
(3) Härdel, Wolfgang, 1990. *Applied Nonparametric Regression*. Cambridge University Press. (In Library)
(4) Härdel, W., M. Muller, S. Sperlich, and A. Werwatz, 2004. *Nonparametric and Semiparametric Models.* Springer Press. (In Library; this book is easy to read on.)
(5) Koenker, R. 2005. Quantile Regression. Cambridge University Press. (In Library)
(6) Pagan, Adrian and Aman Ullah (1999). *Nonparametric Econometrics.* New York : Cambridge University Press. (In Library)
(7) White, H. (2001). Asymptotic Theory for Econometricians. Second edition. Academic Press. (In Library)

Course Policies

Grading Policies

The Term Project and Presentations:

A. In the first week of October, a 1% bonus is given to each student for discussing with me about his/her project.
B. The final written paper has to be at around 6 to 15 pages. It is preferable that the paper has a 1.5-sentence space to balance between easy reading and paper saving.
C. A general format of the term paper is given as follows, which can be slightly changed with personal discretion:
    - A title followed by your name and the date of submission
    - Abstract: to summarize the paper
    - Introduction: to motivate and explain what the paper is about
    - Data: to give the source of the data and basic summary statistics of the data
    - Model and estimation results: to explain which econometric model is used to analyze the data and what are your empirical findings.
    - Conclusion: to conclude the main results of the paper and summarize the potential pitfalls of the econometric methods used in the paper.
    - Tables and Figures: you can choose to either list all the tables and figures at the end of the paper or insert them in the context where they are required.
    - References: to list relevant articles cited in the paper.
    - Program Code: to insert your computer programming code used to produce all the tables and figures reported in the paper. **No grad is given without your submission of the programming code and data** as I need to check the accuracy of your results and the correctness of your code.
    - Please email your data and program code to yisun@uoguelph.ca when submitting your term paper. If the data file itself is not clear enough to explain what the data are, please also write a **Readme.txt** file to describe the data. I hope that you can consciously develop a healthy and efficient research working habit via writing this term paper.
    - Late assignments WITHOUT the consent of the instructor are marked as zero.

Course Policy regarding use of electronic devices and recording of lectures

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration: https://www.uoguelph.ca/registrar/calendars/graduate/2014-2015/

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Graduate Calendar:

https://www.uoguelph.ca/registrar/calendars/graduate/2014-2015/

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: http://www.csd.uoguelph.ca/csd/

Course Evaluation Information

Please refer to: https://www.uoguelph.ca/economics/course-evaluation

Drop date

The last date to drop one-semester courses, without academic penalty, is October 31st, 2014**.** For regulations and procedures for Dropping Courses, see the Academic Calendar:

https://www.uoguelph.ca/registrar/calendars/graduate/2014-2015/

Additional Course Information

As the course mainly focuses on training students toward working on Ph.D. research, the class schedules may be changed during the semester to suit this goal.

Course Learning Outcomes

Upon successfully completing this course, you will be able to:

- Independently apply the nonparametric/semiparametric techniques to investigate empirical issues in economic fields of your interest;
- Use the R software to conduct sophisticated data analysis;
- Understand how to write a research paper in economic field.

Knowledge and Understanding:

1) *This course introduces a brand new econometric methodology that does not appear in undergraduate and master level econometric courses. It focuses more on letting data-speaking out itself with reduced touch of researchers' subjective views.*
2) *The course covers sophisticated data analysis and hypothesis testing techniques and is aimed to guide the Ph.D. students toward working on their PH.D. Thesis in applied economics.*

Discipline/Professional and Transferable Skills:

3) Data analysis becomes demanding skills in high end jobs with explosive data collection power seen in every aspect of economic lives. As this course offers more realistic data analysis techniques than existing parametric techniques taught to undergraduates and master students, the Ph.D. students in this class evidently benefit from their learning of high-end data analysis skills that are not available to the other students with lower degree.

Attitudes and Values:

5) Economic theories are developed under ideal realms, which are often violated in reality. To find models that fit with reality, one has to allow data to speak out themselves. When economic theories are in conflict with the reality, one should be flexible enough to find a model consistent with the latter. The techniques taught in this course are designed to identify true economic relationships from data where the traditional method fails. The students are expected to always open to new evidence and new theory when existing theories are not able to explain the ever developing economy.