Criminology 863
Research Methods IV
School of Criminology, Simon Fraser University
Fall 2018 (Term 1187)
Wednesdays: 9:30am - 12:20pm (SWH 10115 and, perhaps, SWH 10218)

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Office Hours: Fridays, 9am – 10am; by appointment

Calendar Description:

A survey of advanced statistical techniques in criminological research. Specific topics may include: limited (e.g., categorical, ordinal, and count) dependent variables, multi-level modeling, longitudinal data techniques, spatial data analysis, missing values analysis, and propensity score matching. Attention will be given to the decisions involved in data exploration and preparation for statistical modeling purposes using the appropriate statistical software. There is an emphasis on conceptual foundations and application. A strong background in regression-based techniques is assumed.

Prerequisite:

CRIM 861, or permission of the instructor.

Participation:

This course is predicated on active and informed participation. Simply coming to class every week, occupying space, and warming the room is not enough. You are expected to have done the readings for each week before the class, and to be prepared to discuss them.

Course Description:

This course will address a range of statistical techniques, primarily parametric statistics. The seminars will allow the instructor to present one particular statistical technique, i.e.: purposes, assumptions, type of information provided, interpretation of the results, how to conduct such analysis using sophisticated statistical software: I will be using R, but you may use other software such as Stata or SAS. The seminar will also include a discussion on the technique using published scientific studies, i.e.: strengths and limitations of the statistical analysis, when to use (and not to use) such technique, as well as the interpretation of the findings.

Course structure:

There is one seminar (2 hours) per week, plus one 1-hour lab.

Last day of classes: 28 November 2018.

Course evaluation:

Weekly Seminar Contributions	10%
Assignments	25%
Exam	30%
Term Paper and Presentation (Due: 05 December 2018)	35%

Lecture and lab topics:

- Introduction, course outline, getting R to work
- Regression assumptions and diagnostics (multicollinearity, heteroskedasticity, autocorrelation, model specification, interaction effects)
- Panel data (fixed and random effects models)
- Advanced qualitative response models (review of logistic/probit regression, multinomial logit/probit, ordinal logistic regression)
- Count data models (Poisson, Negative binomial, Zero-inflated models)
- Time series
- Hierarchical linear models
- More material if time permits (Spatial statistics and trajectory modeling, for example)

Textbooks

No official textbook for this course. I am providing a number of references below as resources for you.

I will also be using a set of books from the "Blue Book" series written by G. David Garson. These books are $5 for Kindle versions, but can be obtained for free by filling out a form requesting PDF copies; only two books may be requested per 48 hours.

The web page for these books, with information on the books is here:

http://statisticalassociates.com

And the list of these books is available here:

http://statisticalassociates.com/booklist.htm

We will be covering material from the following Blue Books:

Multiple Regression
Logistic Regression, Binary & Multinomial
Ordinal Regression

If you are obtaining these books for free I suggest you get them early because there is a delay in obtaining access and you can only request two books per 48 hours.

The following books are all available in Full text - Unlimited user access from SFU Library and may prove to be useful (Ignore the math, unless you are interested!):

1. Lewis-Beck, Michael. *Applied Regression: An Introduction*. Thousand Oaks, CA: Sage Publications, 1980. ISBN: 9780803914940
2. Jaccard, James and Robert Turrisi. *Interaction Effects in Multiple Regression*. Thousand Oaks, CA: Sage Publications, 2003. **DOI:** http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412984522
3. Berry, William D. and Stanley Feldman. *Multiple Regression in Practice*. Thousand Oaks, CA: Sage Publications, 1985. ISBN: 9780803920545
   - Ignore: Measurement Error, Nonlinearity and Nonadditivity
4. Kaufman, Robert L. *Heteroskedasticity in Regression: Detection and Correction*. Thousand Oaks, CA: Sage Publications, 2013. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781452270128
5. Allison, Paul D. *Fixed Effects Regression Models*. Thousand Oaks, CA: Sage Publications, 2009. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412993869
6. Finkel, Steven E. *Causal Analysis with Panel Data*. Thousand Oaks, CA: Sage Publications, 1995. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412983594
7. Pampel, Fred C. *Logistic Regression: A Primer*. Thousand Oaks, CA: Sage Publications, 2000. ISBN: 9780761920106
   - Ignore: Estimation and Model Fit, Probit Analysis
8. Menard, S. *Applied Logistic Regression Analysis*. Thousand Oaks, CA: Sage Publications, 2002. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412983433
9. Jaccard, James. *Interaction Effects in Logistic Regression*. Thousand Oaks, CA: Sage Publications, 2001. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412984515
10. Borooah, Vani K. *Logit and Probit*. Thousand Oaks, CA: Sage Publications, 2002. **DOI:** http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412984829
11. Luke, Douglas A. *Multilevel Modeling*. Thousand Oaks, CA: Sage Publications, 2004. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412985147
12. Ward, Michael D. amd Kristian Skrede Gleditsch. *Spatial Regression Models*. Thousand Oaks, CA: Sage Publications, 2008. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781412985888
13. Pickup, Mark. *Introduction to Time Series Analysis*. Thousand Oaks, CA: Sage Publications, 2015. DOI: http://dx.doi.org.proxy.lib.sfu.ca/10.4135/9781483390857

The "Sage Little Green Books" are technical at times, but excellent resources for the material we will cover.

There may also be other required readings (books, book chapters, journal articles, etc.) available through Canvas. You are responsible to download, photocopy, or borrow these readings from the library.

ACADEMIC (DIS)HONESTY

It is your responsibility to know the policies and follow the policies. I will follow through with any acts of academic dishonesty in my classes.

ATTENTION STUDENTS WITH A DISABILITY

Please contact the Centre for Students with Disabilities, (MBC 1250 or Phone 778-782-3112) if you need or require assistance, not your individual instructors.

N.B.: Students are reminded that attendance in the first week of classes is important. However, there are no tutorials in the first week.

Assignments not submitted to the Professor/T.A. during class/office hours must be placed in the security box at the School of Criminology General Office (Saywell Hall). The box is emptied Monday to Friday at 8:30 a.m. and 3:30 p.m. only and the contents are date stamped accordingly. No other department's date stamp will apply (e.g. Library/Campus Security) and the School of Criminology is not responsible for assignments submitted any other way (e.g. slid under office doors).

E-mail policy: The School of Criminology STRONGLY DISCOURAGES the use of e-mail in lieu of office hour visits. Criminology advises its instructional staff that they are NOT required to respond to student e-mails and that students wishing to confer with them should do so in person during scheduled meeting times.

The University does NOT accept assignments by fax.

The University has formal policies regarding intellectual dishonesty and grade appeals which may be obtained from the General Office of the School of Criminology.

UNIVERSITY POLICY FORBIDS FINAL EXAMINATIONS WHILE CLASSES ARE STILL IN SESSION.