JSGS 803 – QUANTITATIVE METHODS AND RESEARCH DESIGN

CALANDER DESCRIPTION

Provides students with the statistical concepts and techniques required for conducting research and critically evaluating empirical studies. Topics include statistical inference, sampling theory, and data and regression analysis as applied to problems in public policy.

COURSE CONTENT AND APPROACH

This course is designed to introduce you to the basic principles of bivariate and multivariate regression analysis, and to apply the regression model to problems in public policy research. Various modifications to the regression model will be examined, as will several problems that often plague regression models. Finally, you will become familiar with the regression routines of STATA. This software will be used in completing class assignments.

This course emphasizes the application of statistical procedures more than the theoretical or mathematical principles behind them. While you will learn the basic theoretical principles of regression analysis, the overall objective of the course is to learn how to apply this method to diverse empirical problems in public policy.

The course has a lecture format. However, discussion is encouraged. This course outline is subject to changes made during the term.

REQUIRED READINGS

**EVALUATION (subject to changes)**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Description</th>
<th>Due Date</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>Bivariate Regression-paper and pencil</td>
<td>Due at 1pm on Oct. 1</td>
<td>10%</td>
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<tr>
<td>Assignment 2</td>
<td>Bivariate Regression-computer</td>
<td>Due at 1pm on Oct. 15</td>
<td>10%</td>
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<tr>
<td>Mid-term Exam</td>
<td></td>
<td>In-class on Oct. 15</td>
<td>20%</td>
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<tr>
<td>Assignment 3</td>
<td>Multiple Regression-computer</td>
<td>Due at 1pm on Nov. 26</td>
<td>15%</td>
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<tr>
<td>Assignment 4</td>
<td>Term Project</td>
<td>Due at 1pm on Dec. 3</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td></td>
<td>In-class on Dec. 10</td>
<td>25%</td>
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</tbody>
</table>

In this course, I assume that most of you have no experience in using STATA. I will be explaining how to use STATA for particular problems. Should you desire more exhaustive resources, there are many manuals available in the library, bookstore and online (e.g. at http://www.stata.com/links/resources1.html).

While the STATA software is expensive you can get access to STATA for free by following the instructions on the website of “ITS Service and Support”, at http://www.usask.ca/ict/hardware-software/statistical-software/stata.php. If you need help, ask the ITS support staff at Learning Commons on the second floor of the Murray Library.

**LATE ASSIGNMENTS**

Without compelling reasons, late assignments will not be accepted and will result in a mark of zero.

**ATTRIBUTES OF JSGS GRADUATES**

1. Management, Governance, and Leadership: Ability to inspire support for a vision or course of action and successfully direct the teams, processes, and changes required to accomplish it.
2. Communication and Social Skills: Ability to communicate effectively and build enduring, trust-based interpersonal, professional relationships.
3. Systems Thinking and Creative Analysis: Ability to identify key issues and problems, analyze them systematically, and reach sound, innovative conclusions.
4. Public Policy and Community Engagement: Ability to understand how organizational and public policies are formulated, their impact on public policy and management and how to influence their development.
5. Continuous Evaluation and Improvement: Commitment to on-going evaluation for continuous organizational and personal improvement.
6. Policy Knowledge: Ability to analyze and contribute content to at least one applied policy field.
COURSE OUTLINE AND ASSIGNMENTS (SUBJECT TO CHANGES)

Session 1 – Introduction, correlation and linear regression (September 17, distribute A1, A2 & A4)

REQUIRED READINGS


> Kahane, Regression Basics, Chapter 1; Chapter 2, pp. 19-29.


SUPPLEMENTARY READING


Session 2 – Hypothesis testing and model performance (September 24)

REQUIRED READINGS

> Kahane, Chapter 3


SUPPLEMENTARY READING


Session 3 – Regression model assumptions and the analysis of residuals (October 1, A1 is due)

REQUIRED READINGS

> Kahane, Chapter 2, pp. 30-34; Chapter 7.
October 8: Thanksgiving holiday – no class

Session 4 – Mid-term exam (1 hour) and presentation of Assignment 2 (October 15, A2 is due)

Session 5 – The multiple regression model: partial slopes (October 22)

ASSIGNMENT 3: MULTIPLE REGRESSION (DUE March 21)

REQUIRED READINGS
> Kahane, Chapter 4.

SUPPLEMENTARY READINGS

Session 6 – The multiple regression model: dummy variables and interaction effects (October 29)

REQUIRED READINGS
> Kahane, Chapter 5, pp. 86-101.

SUPPLEMENTARY READINGS

Session 7 – Outliers and data transformations (November 5)

REQUIRED READINGS
> Kahane, Chapter 5, pp. 79-83; Chapter 7.

SUPPLEMENTARY READINGS
November 12: reading week – no class

Session 8 – The multiple regression model: choosing a specification (November 19)

REQUIRED READINGS
> Kahane, Chapter 7.

SUPPLEMENTARY READINGS

Session 9 – logistic regression and time series data (November 26, A3 is due)

REQUIRED READINGS
> Logistic: Kahane, Chapter 5, pp.83-86.
> Time series data: Kahane, Chapter 6; Chapter 7, pp. 132-138.

SUPPLEMENTARY READING

Session 10 – Term project presentation and review (December 3, A4 term project is due)

Session 11 – Final exam (December 10, 1pm – 4pm)

STUDENTS WITH SPECIAL NEEDS

University of Regina (U of R): Students in this course who, because of a disability, may have a need for accommodations are encouraged to discuss this need with the instructor and to contact the Coordinator of Special Needs Services at (306) 585-4631.
University of Saskatchewan (U of S): Students in this course who, because of a disability, may have a need for accommodations are encouraged to discuss this need with the instructor and to contact Access and Equity Services (AES) at 966-7273.

STUDENTS EXPERIENCING STRESS

University of Regina (U of R): Students in this course who are experiencing stress can seek assistance from the University of Regina Counselling Services. For more information, visit this website: http://www.uregina.ca/student/counselling/contact.html, or call (306) 585-4491 between 8:30 a.m. to 4:30 p.m. Monday to Friday.

University of Saskatchewan (U of S): Students in this course who are experiencing stress can seek assistance from the University of Saskatchewan Student Wellness Centre. For more information, please visit this website: https://students.usask.ca/health/centres/counselling-services.php, or call (306) 966-4920 between 8:30 a.m. to 4:30 p.m. Monday to Friday.

ACADEMIC INTEGRITY AND CONDUCT

University of Regina (U of R): Ensuring that you understand and follow the principles of academic integrity and conduct as laid out by the University of Regina (available at http://www.uregina.ca/gradstudies/grad-calendar/policy-univ.html) is vital to your success in graduate school. Ensuring that your work is your own and reflects both your own ideas and those of others incorporated in your work is important: ensuring that you acknowledge the ideas, words, and phrases of others that you use is a vital part of the scholarly endeavour. If you have any questions at all about academic integrity in general or about specific issues, contact your course instructor to discuss your questions.

University of Saskatchewan (U of S): Understanding and following the principles of academic integrity and conduct as laid out in the University of Saskatchewan’s Guidelines for Academic Conduct is vital to your success in graduate school (available at http://www.usask.ca/secretariat/student-conduct-appeals/academic-misconduct.php). Ensuring that your work is your own and reflects both your own ideas and those of others incorporated in your work is important: ensuring that you acknowledge the ideas, words, and phrases of others that you use is a vital part of the scholarly endeavour. If you have any questions at all about academic integrity in general or about specific issues, contact any faculty member and we can discuss your questions.

STUDENT SUPPORTS

There are personal and academic support services and programs available for students and the university community. For more information and a comprehensive guide, please go to: https://students.usask.ca/.