

# Urban Spatial and Statistical Analytical Methods

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<b>Course Number:</b> EVDS 683.78 H (3-0)	Dr. Choi, Kwangyul
<b>Session:</b> Winter 2017	<a href="mailto:kwangyul.choi1@ucalgary.edu">kwangyul.choi1@ucalgary.edu</a>
<b>Time:</b> Tue/Thu, 11:00 AM – 12:20 PM	Office Hour: Mon/Wed 1:00PM-2:30PM
<b>Location:</b> Main Campus, PF 2110	Office: PF 4203
	Dr. Han, Albert
	<a href="mailto:albert.han@ucalgary.edu">albert.han@ucalgary.edu</a>
	Office Hour: Tue/Thu 1:00PM-2:30 PM
	Office: PF 4203

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## 1. Introduction

This course will introduce basic concepts of statistics and teach analytic methods to equip students with necessary skills to visualize and analyze various datasets used in planning practice and urban studies. Through this course, students will learn how to perform demographic and economic base analysis, analyze neighborhood changes and urban growth, and understand transportation statistics. Lastly, this course will teach basic statistics forming the basis of the analytic methods covered in this course, and introduce some advanced analytic methods used in planning research and practice.

## 2. Objectives

The objective of this course is as follows:

- Students will learn how to present and visualize statistical information commonly used in planning practice such as demographics, economic data, and land use data.
- Students will learn how to conduct a series of demographic analyses that constitutes very important part of the planning process.
- Students will learn how to analyze economic characteristics of a community so that they can develop necessary strategies to foster economic development.
- Students will learn how to use various datasets to analyze neighborhood change over time so that they can identify problems and prescribe solutions unique to the neighborhood.
- Students will learn how to use land cover data to analyze development pattern of a city or a region and develop sustainable growth plans.
- Students will learn how to use transportation data to understand travel behaviour and analyze travel patterns of a community.
- Lastly, students will be introduced to advanced statistical methods they can explore on to conduct more in-depth analyses of urban problems.

### 3. Teaching Approach

This course will involve a mixture of lecture, in-class demonstration, and lab-sessions during which students can practice what they have learned. Given the nature of this course, it is important for students to thoroughly practice the methods by actively participating in the lab-sessions and completing their assignments.

### 4. Topics & Class Schedule

Week	Start Date	Lecture
1	Tuesday, January 10	Course Introduction; Statistical Background for Urban Studies; Descriptive Statistics
2	Tuesday, January 17	Introduction to Census; Demography: Age, Sex, and Race; Population Pyramids
3	Tuesday, January 24	Optional Introduction to Excel
4	Tuesday, January 31	Presenting Data with Quantitative Graphics; Writing About Numbers
5	Tuesday, February 7	Population Projections: Extrapolation
6	Tuesday, February 14	Population Projections: Cohort Component Technique
7	Sunday, February 19	Mid-Term Break (Block Week)
8	Tuesday, February 28	Economic Analysis: Economic Base Model
9	Tuesday, March 7	Understanding Neighborhood Change (Measuring Inequality)
10	Tuesday, March 14	Visualizing Urban Growth using Land Cover Data
11	Tuesday, March 21	Numbers in Transportation
12	Tuesday, March 28	Introduction to Advanced Statistical Methods in Urban Studies;  ANOVA, Basic Regression
13	Tuesday, April 4	Wrap-up

### 5. Assignments and Evaluation

Each student will be required to complete five hands-on assignments. These assignments are designed to give students opportunities to practice what they have learned during class so that they can fully comprehend the methods and be able apply them in real practice and research. Depending on the work load, instructors may allow students to work in pair. **Class attendance is mandatory and active class participation will count toward students' grade.**

Item	Assignment	(%)
1	Assignment 1: Descriptive Statistics	10
2	Assignment 2: Population Analysis 1	20
3	Assignment 3: Population Analysis 2	20
4	Assignment 4: Economic Analysis	20
5	Assignment 5: Neighborhood Change	20
6	Attendance and Class Participation	10
<b>Total</b>		<b>100</b>

## 6. Grading Scale

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	95-100	Outstanding – evaluated by instructor
A	4.00	3.85-4.00	90-94.99	Excellent – superior performance showing comprehensive understanding of the subject matter
A-	3.70	3.50-3.84	85-89.99	Very good performance
B+	3.30	3.15-3.49	80-84.99	Good performance
B	3.00	2.85-3.14	75-79.99	Satisfactory performance
B-	2.70	2.50-2.84	70-74.99	Minimum pass for students in the Faculty of Graduate Studies
C+	2.30	2.15-2.49	65-69.99	All final grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
C	2.00	1.85-2.14	60-64.99	
C-	1.70	1.50-1.84	55-59.99	
D+	1.30	1.15-1.49	50-54.99	
D	1.00	0.50-1.14	45-49.99	
F	0.00	0-0.49	0-44.99	

Note: A student who receives a "C+" or lower in any one course will be required to withdraw regardless of their grade point average (GPA) unless the program recommends otherwise. If the program permits the student to retake a failed course, the second grade will replace the initial grade in the calculation of the GPA, and both grades will appear on the transcript.

## 7. Readings

The following course materials are subject to change.

Klosterman, Richard E. (1990). *Community Analysis and Planning Techniques*. Savage, MD: Rowman and Littlefield.

Miller, Jane E. (2004). *The Chicago Guide to Writing About Numbers*. Chicago: University of Chicago Press.

**[To be added]**

## 8. Notes

1. Written work, term assignments and other course related work may only be submitted by e-mail if prior permission to do so has been obtained from the course instructor. Submissions must come from an official University of Calgary (ucalgary) email account.
2. Academic Accommodations. Students who require an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to their Instructor or the designated contact person in EVDS, Jennifer Taillefer ([jtaillef@ucalgary.ca](mailto:jtaillef@ucalgary.ca)). Students who require an accommodation unrelated to their coursework or the requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience). For additional information on support services and accommodations for students with disabilities, visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/)

3. Plagiarism - Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Most commonly plagiarism exists when:(a) the work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work (this includes having another impersonate the student or otherwise substituting the work of another for one's own in an examination or test),(b) parts of the work are taken from another source without reference to the original author,(c) the whole work (e.g., an essay) is copied from another source, and/or,(d) a student submits or presents work in one course which has also been submitted in another course(although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved. While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted. Plagiarism is an extremely serious academic offence. It is recognized that clause (d) does not prevent a graduate student incorporating work previously done by him or her in a thesis. Any suspicion of plagiarism will be reported to the Dean, and dealt with as per the regulations in the University of Calgary Graduate Calendar.
4. Information regarding the Freedom of Information and Protection of Privacy Act (<http://www.ucalgary.ca/secretariat/privacy>) and how this impacts the receipt and delivery of course material
5. Emergency Evacuation/Assembly Points (<http://www.ucalgary.ca/emergencyplan/assemblypoints>)
6. Safewalk information (<http://www.ucalgary.ca/security/safewalk>)
7. Contact Info for: Student Union (<https://www.su.ucalgary.ca/contact/>); Graduate Student representative ( <http://www.ucalgary.ca/gsa/>) and Student Ombudsman's Office (<http://www.ucalgary.ca/ombuds/>).