

Spatial and Analytic Study of Student Housing at CMU

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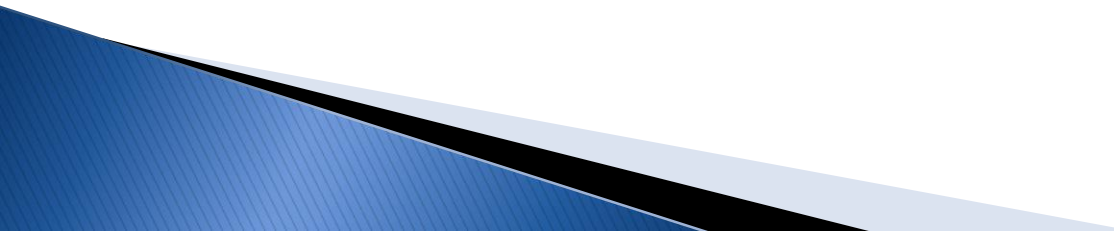
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36-303 Sampling, Survey and Society

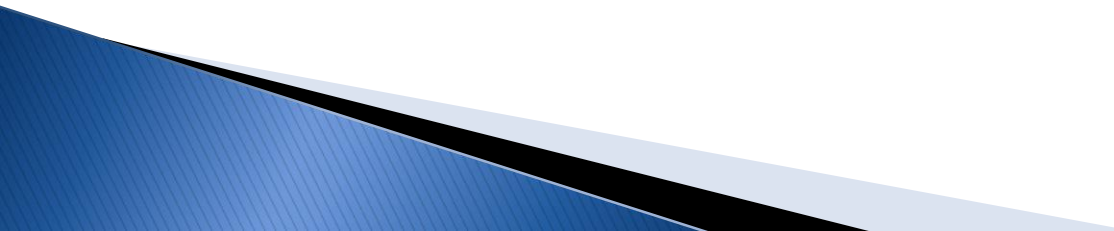
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Introduction

Research Question

- ▶ Many students live off-campus
 - ▶ Possible correlation between where students choose to live and what they study
 - ▶ Main Questions
 - Address and major
 - distribution by neighborhood
 - most popular areas for undergrad/grad
 - distance from shuttle or bus
 - average commute distance
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Introduction

Motivations/Benefits

- ▶ University:
 - planning shuttle routes
 - campus police coverage
 - future housing projects

- ▶ Students:
 - neighborhoods with similar students

Introduction

Protocol:

Is the person an undergraduate student?

Is the person a graduate (Master) student?

Is the person a graduate (PhD) student?

Is the person a member of Marianna Brown Dietrich College of Humanities and Social Sciences (DC)? Which department?

Neighborhood

City

Distance to Campus (miles)

Time to campus by foot (minutes)

Time to campus by car (minutes)

Time to campus by public transportation (minutes)



Body

Sample Selection

▶ Target Population

- All undergrad/grad students enrolled at CMU in Pittsburgh living off-campus


▶ Sampling Frame

- Administrative records from the Office of the Registrar

▶ Sampling scheme

- Using as census data from the Office of the Registrar

▶ Sample Size

- 2,252 undergraduate students
 - 5,769 graduate students
- 

Body

Data Collection

- ▶ Why don't we have all the records?
 - CMU Factbook: 2,252 undergraduate students and 5,769 graduate students living off-campus
 - Registrar records: 894 undergraduate students and 3,403 graduate students living off-campus
 - Non-response
 - Privacy

Body

Preparation of Survey

- ▶ Reviewing and cleaning data
- ▶ Duplicate addresses, campus addresses, office addresses, no address, re-formatting addresses
- ▶ 4129 complete records
 - 3259 graduates
 - 870 undergraduates
- ▶ 168 omitted records
 - 149 campus addresses
 - 16 duplicates
 - 3 no address

Body

Data cleaning

- Use only off-campus addresses
- Choose first address in duplicate entries

Example:

ID#21	303 Sample Street	Apt #36	Pittsburgh	PA	15289
ID#21	456 Statistics Ave		Pittsburgh	PA	15213

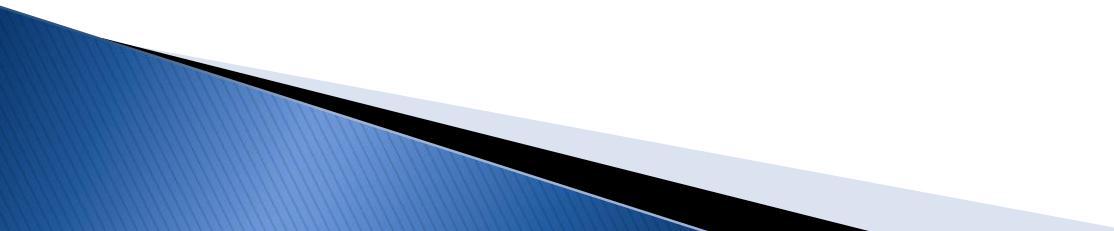
Body

CMU's actual distribution ('11-'12) and distribution of cleaned data



Conclusion

Further Analysis:

- ArcMap GIS (Geographic Information Systems)
 - Geocoding the addresses
 - Adding shuttle routes and transit layers
 - Looking to see if certain majors cluster together
 - Analyzing distance from data points to added layers
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Appendix

	Cleaned Records				CMU Distribution 2011/12	
	<i>Undergr</i>	<i>Grad</i>	<i>Total</i>	<i>% of total</i>	<i>Number</i>	<i>% of total</i>
CIT	224	1111	1335	32	3,217	30
SCS	74	586	660	16	1,366	13
HC	0	488	488	12	951	9
TSB	55	369	424	10	1,126	10
CFA	214	205	419	10	1,267	12
HSS (DC)	174	178	352	9	1,481	14
MCS	88	208	296	7	1,019	9
CMU	41	114	155	4	423	4
Total	870	3259	4129	100	10,850	100