Spatial and Analytical Study of Student Housing

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36-303 Sampling, Survey, and Society

Agenda

Introduction

- Research Question
- Motivations/Benefits
- Questionnaire

Methods

- Sample Selection & Data Collection
- Data Cleaning

Results

- Post-stratification weights
- Analysis
- Discussion

Summary

Research Question

Is there a relationship between what students study and where they live?

Motivations/Benefits

University

- planning shuttle routes
- campus police coverage
- future housing projects

Students

- neighborhoods with similar students

Questionnaire

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
Distance to Campus (miles)
Distance to bus stops (miles)
Distance to shuttle stops (miles)
Distance to bars (miles)
Distance to supermarkets (miles)

Methods

Carnegie
Rook
Wabash
Green Tree
Beechview
Allentown
Mt Oliver
Mt. Oliver Boro
Bon Air
Swisshelm Park
Hazelwood
Glen Hazel
Homestead
Rankin
Braddock Hills
Braddock
Whitaker
West Homestead
Munhall
Dormont
Brookline
Carrick
South Hills
Overbrook
Heidelberg
Scott Township
Banksville Rd
Noble Ln
376
30
19
885
837
51

Sample & Data Collection

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: census
- Margin of Error of 0.0098, for sample of 4090
- Nonresponse
- Privacy

Data Cleaning

- 4297 records received from the registrar
- 4090 observations included
  - on-campus addresses
  - duplicate entries for the same student
  - no address listed
- reformatting entries
- zip codes
- geocoding

Results

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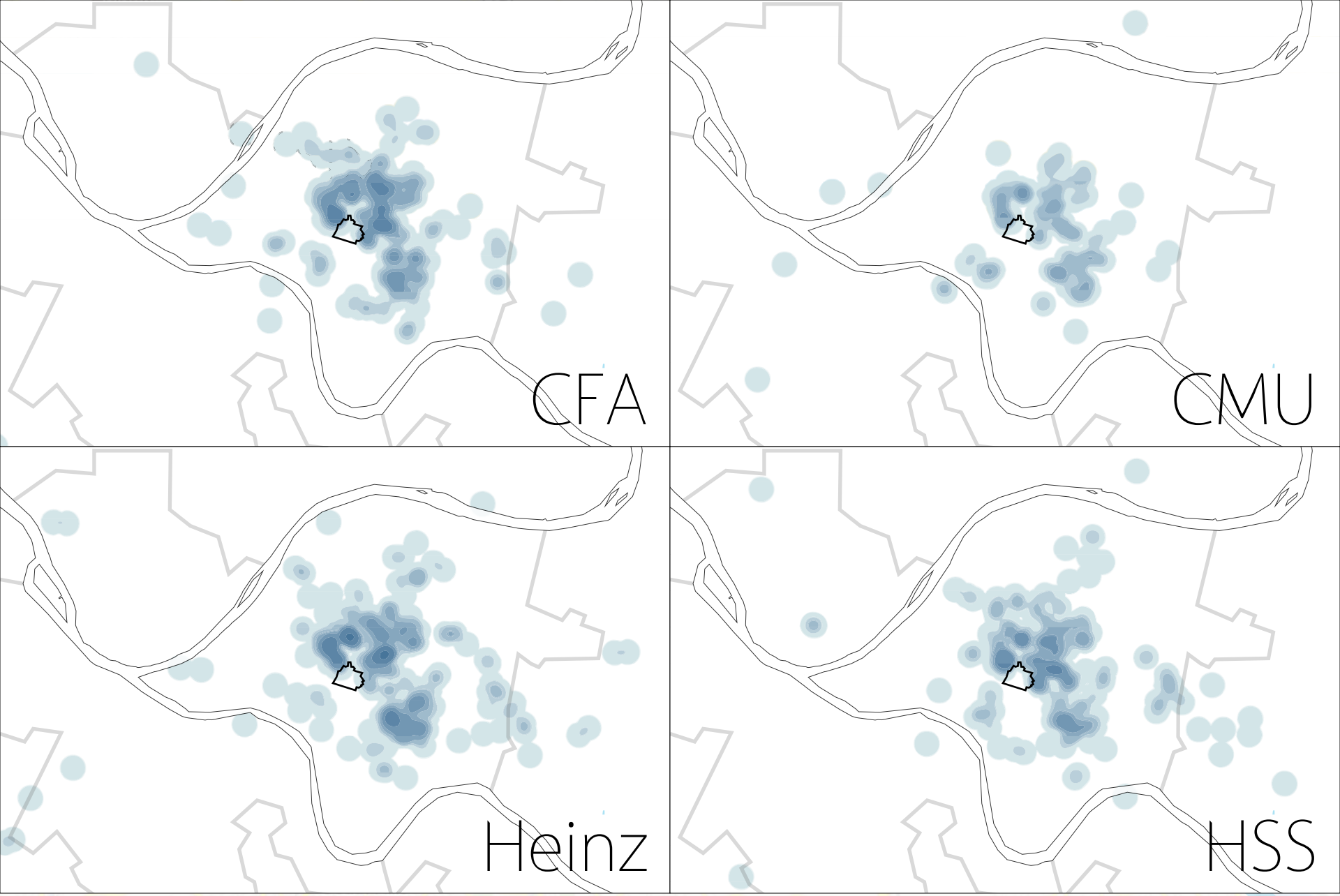
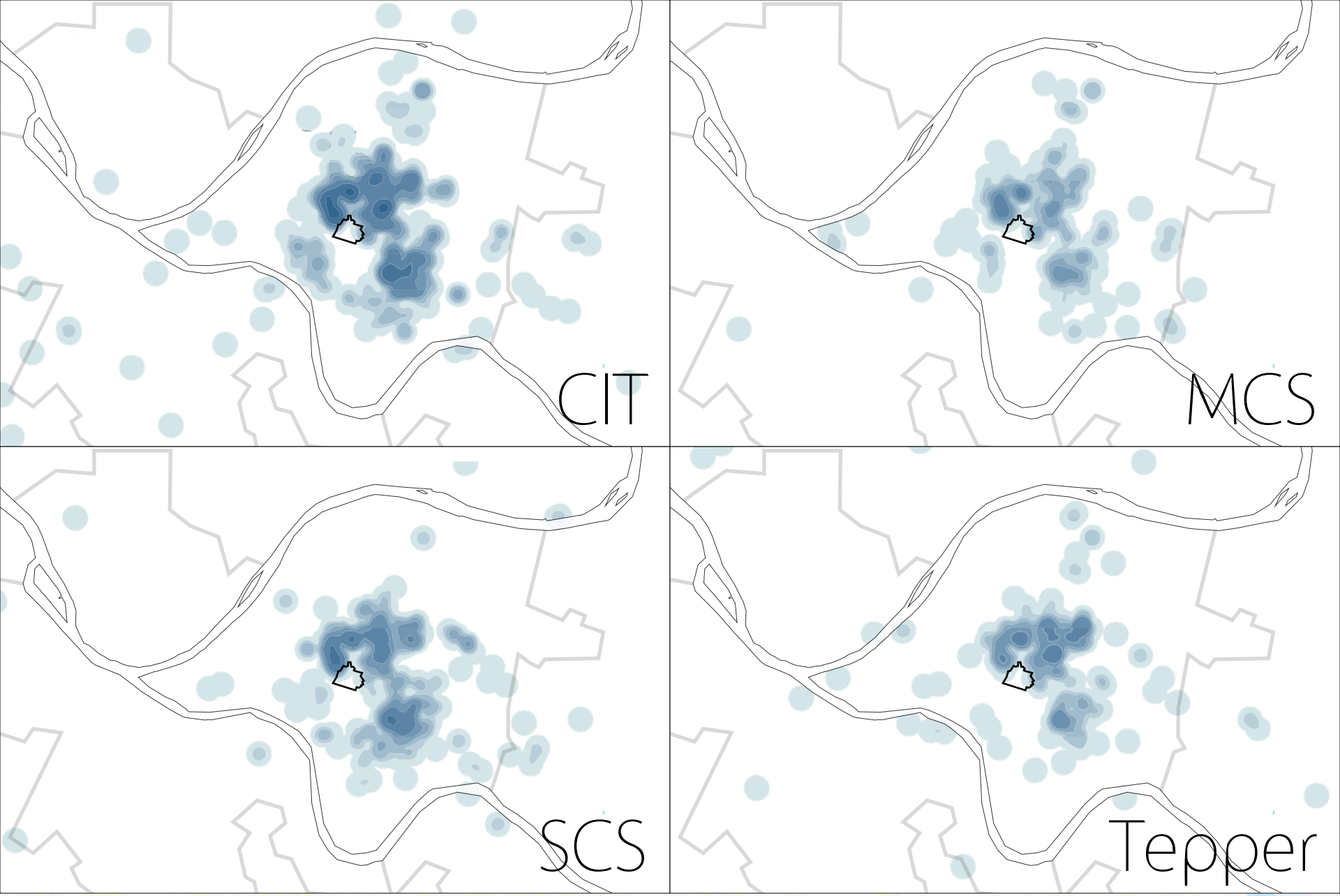
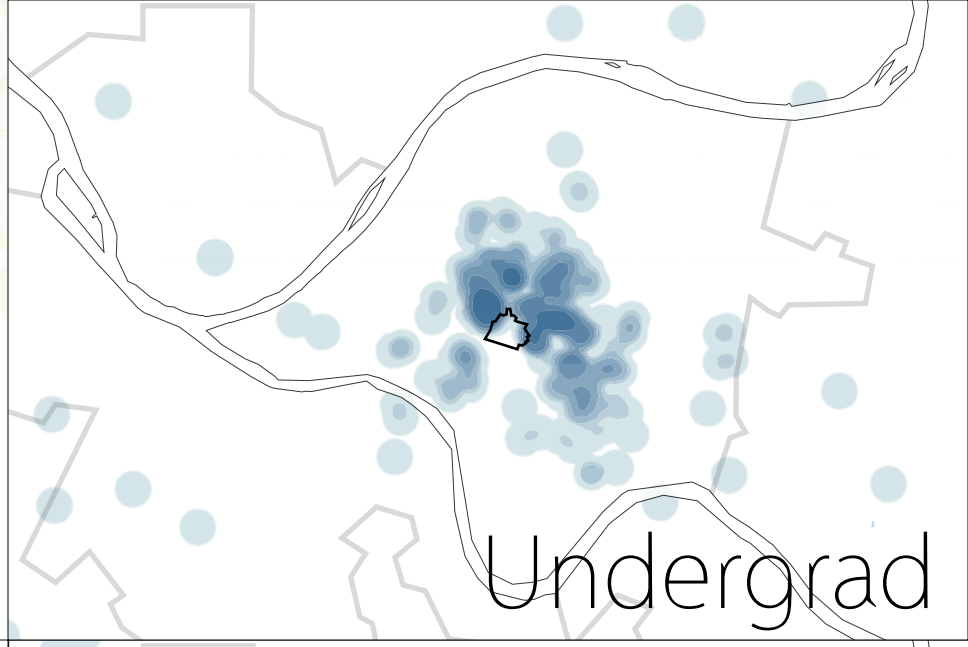


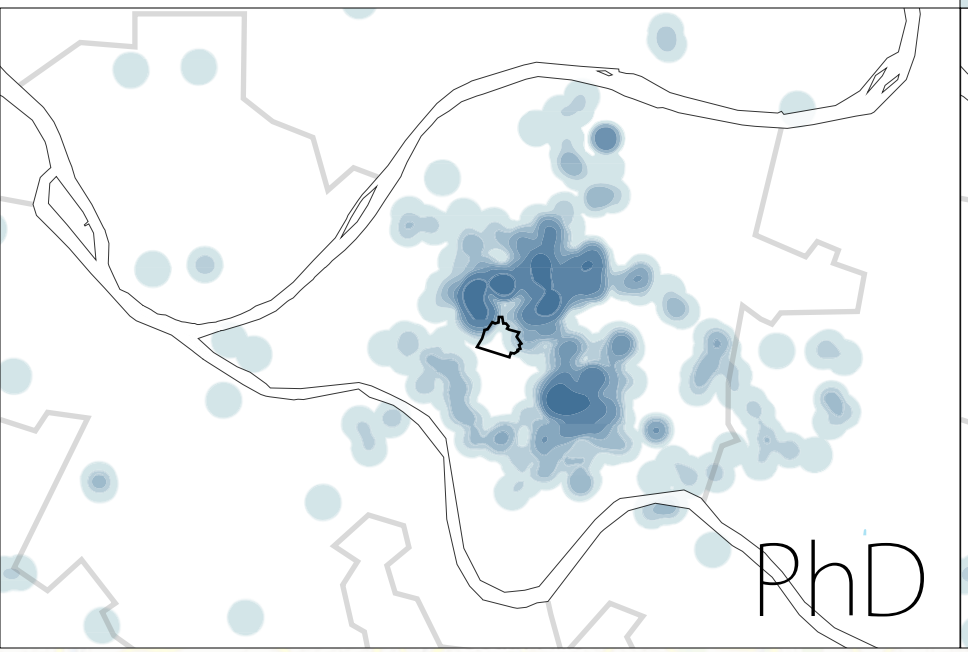
Results

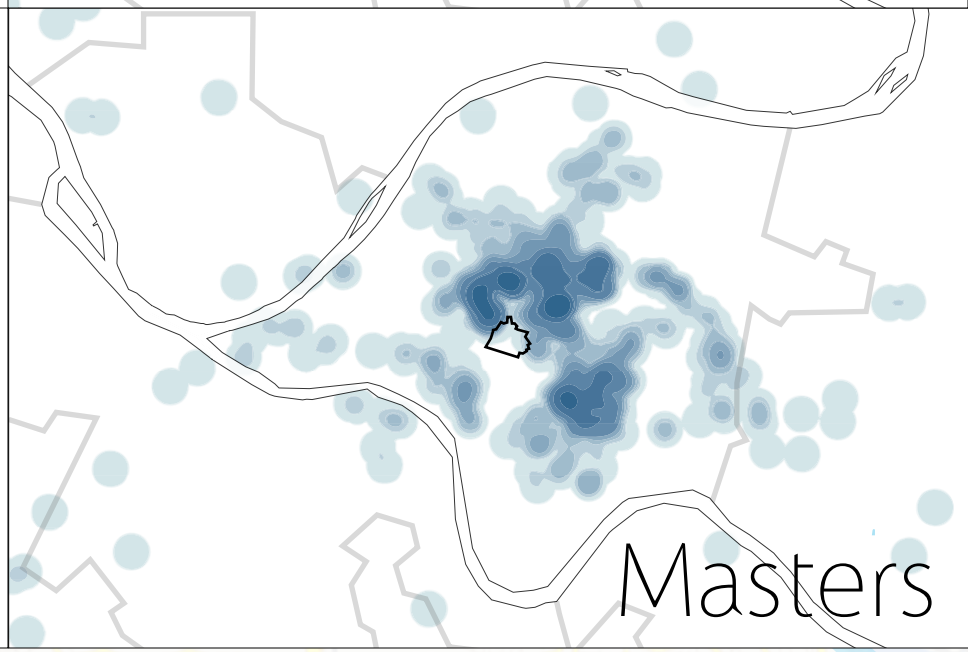


Results

Maps by Class

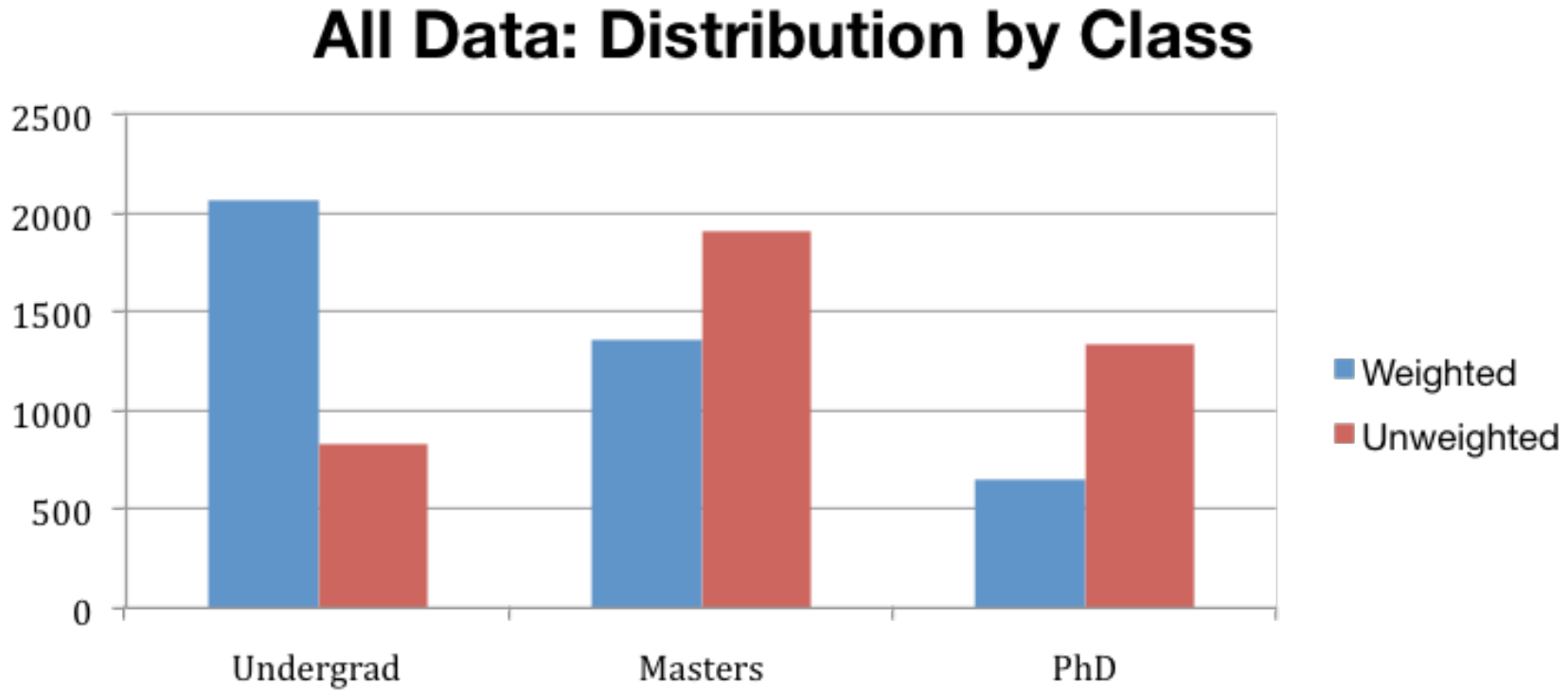






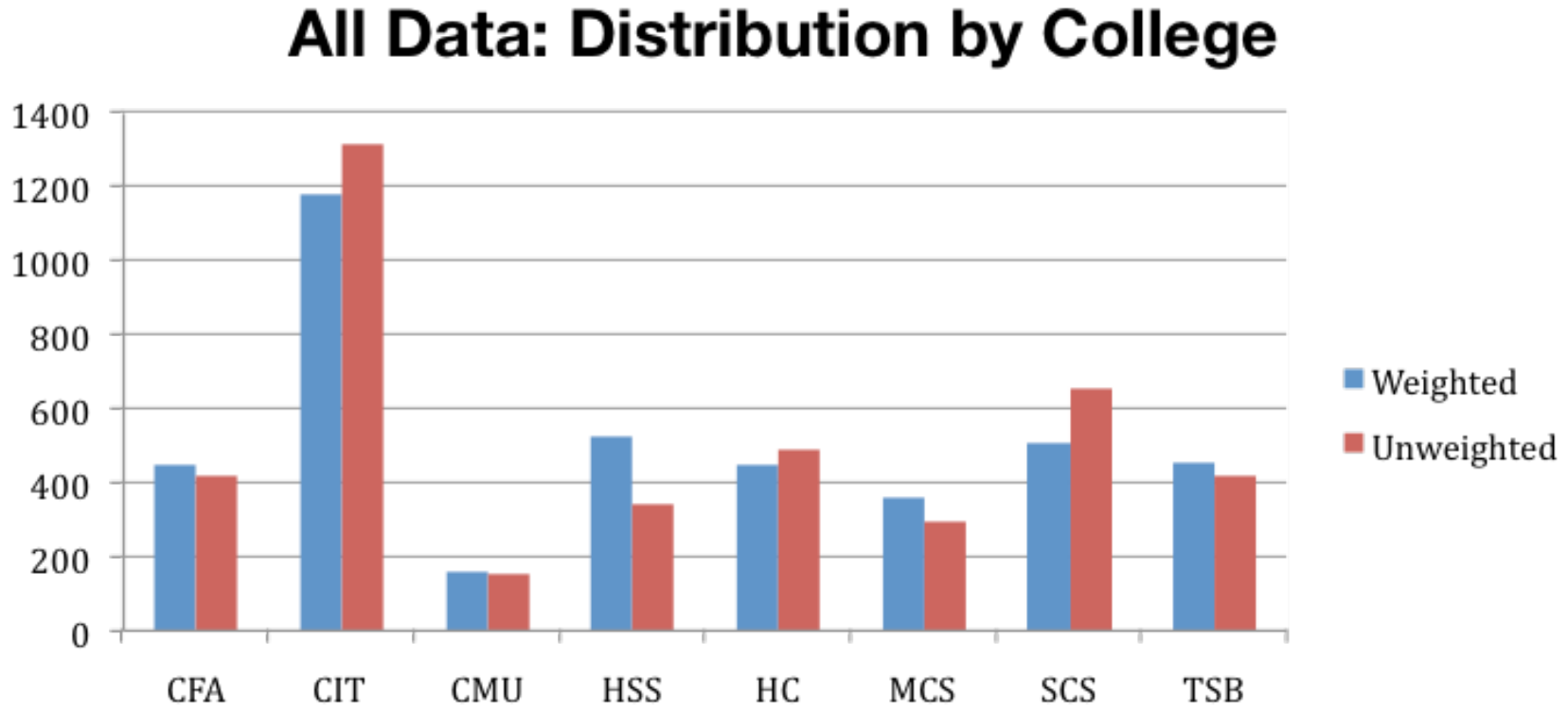
Results

Post-stratification weights



	Undergraduate	Master's	PhD
Unweighted	837	1917	1336
Weighted	2075.73	1360.61	653.66

Post-stratification weights



	CFA	CIT	CMU	HC	HSS	MCS	SCS	TSB
Unweighted	417	1318	155	488	343	294	653	422
Weighted	450.10	1179.08	160.57	450.81	527.55	362.00	507.65	452.23

Results

Analysis

- Used GIS
- Statistical tests and Maps
- All 4090 Observations
  - Distance to CMU*
- 3893 Within City Observations
  - Distance to shuttles
  - Distance to bus stops
  - Distance to bars*
  - Distance to supermarkets*

Results

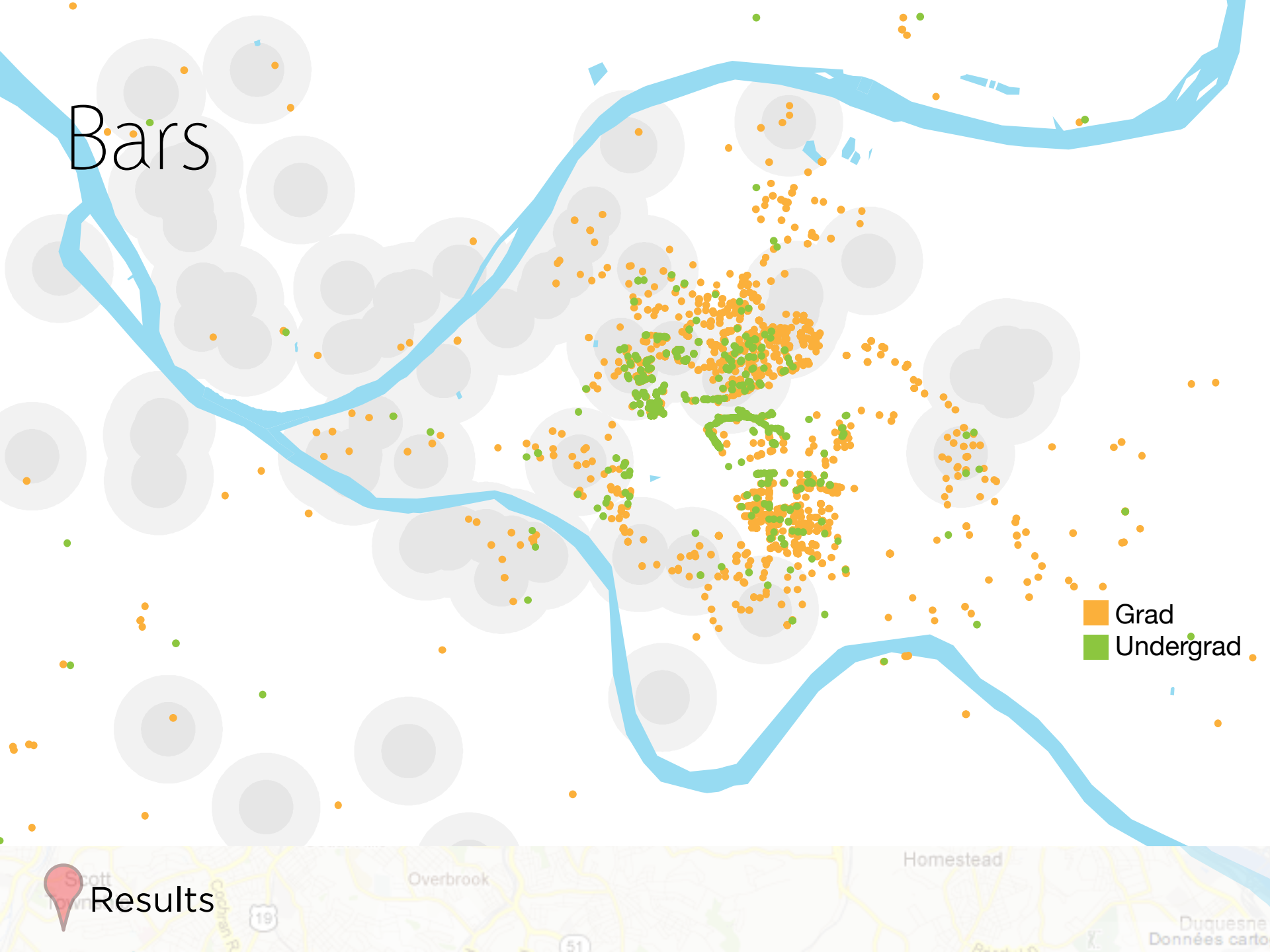
Analysis

Means	Distance to CMU	Distance to Supermarkets	Distance to Bars
Undergrads	0.48	0.44	0.40
Masters	0.80	0.37	0.41
PhDs	0.88	0.37	0.45

T-test	Distance to CMU	Distance to Supermarkets	Distance to Bars
Under vs Masters	0	<0.001	Not significant
Under vs PhD	0	<0.001	<0.001
Master vs PhD	<0.001	Not significant	<0.001

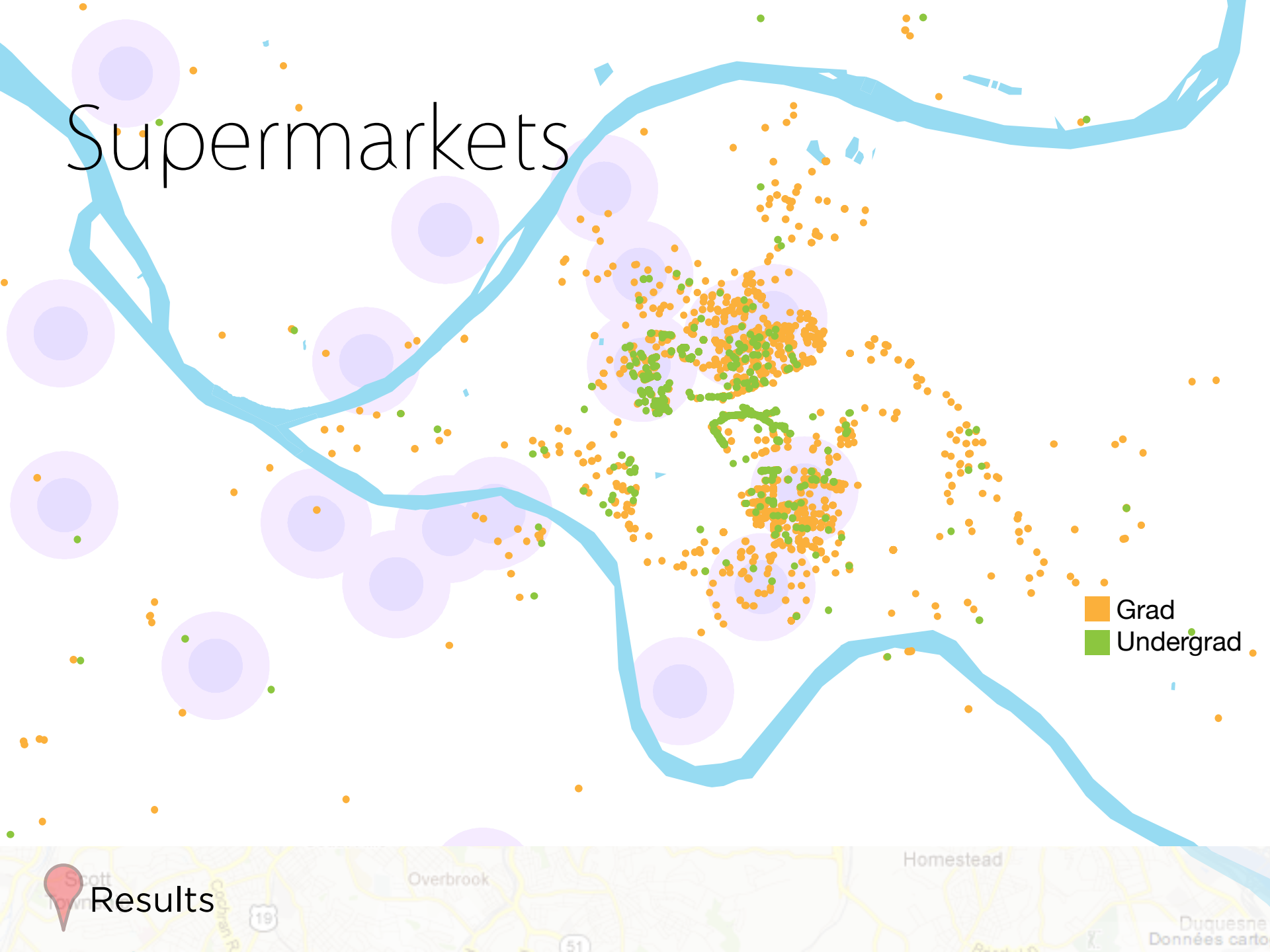
ANOVA	Distance to CMU	Distance to Supermarkets	Distance to Bars
Classes	<0.001	<0.001	<0.001
College	Not significant	<0.001	Not significant

Bars



Results

Supermarkets



Discussion

Research Question

- weren't able to quantitatively measure clusters
- have visual representation of clustering
- distance to campus significant for each class, not college
- bars and supermarkets

Future Work

- Analyze data with housing prices

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What's Left to Do & Advice

- MoM: Poster & Poster Presentation
- GIS is nice
- Obtain data from CMU
  - cons: cleaning data is tedious

Questions?