PPD 499 – Applied Urban Geography: Exploring Urban Communities Using GIS (4 credits), Spring 2017

Instructor: Xize Wang, xizewang@usc.edu

Course Overview:

Whether you will be a real estate investor, an urban planner, an urban designer, a city administrator, or a social worker, the spatial aspects of cities will be a large part of your job. If you pursue a career related to climate change, affordable housing, transportation and mobility, or poverty alleviation, and a host of other goals, you will need to analyze the spatial structure of cities on a daily basis. This course will introduce you to the urban geography of cities. Urban geography studies the spatial patterns, structures and organization of the cities, and the complex processes that underlie spatial structure. With the help of up-to-date geographic information system (GIS), exploring the spatial aspects of the urban communities has never been so efficient, effective and easy. GIS can help us have hands-on learning experiences on the core concepts of urban geography, such as defining the metropolis, understanding internal urban structure, systems of cities, neighborhoods, residential mobility, industrial location, environmental problems and urban planning.

This course combines theory and the practice of urban geography in a global perspective. It allows students to learn basic theories in urban geography and their policy applications in both US and international contexts, practice GIS skills in analyzing urban communities and professional skills such as problem solving. By the end of the course, the student will be able to:

- Understand the core **concepts of urban geography** through course readings
- Comprehend and critique **major policy debates** on urban and regional development from a social and spatial perspective through discussions sessions
- Develop **analytical and data visualization skills** using GIS through lab exercises
- Develop **professional skills** through working on the course project

Course Format:

This course will run as both a discussion seminar and a workshop. For each week’s meeting, the first half will be a discussion session led by the instructor on the course readings, the second half will be a lab session with hands-on exercises using the ArcGIS software. In each week, both the discussion session and the lab workshop with focus on the same topic in urban geography assigned for the week. The students are required to read all assigned readings before the beginning of the class and to prepare to be actively engaged with the course discussion. Each student is required to finish 11 weekly assignments and a final project.
There is no prerequisite of this course. If you have basic knowledge of ArcGIS (not required), this course will extend your ArcGIS skills in analyzing urban communities.

**Texts:**

The following textbook is *required* and can be obtained in the USC Bookstore or other online sources such as Amazon:


All other reading materials will be uploaded to Blackboard.

The students are required to finish all the reading materials before the class and engage actively in course discussions. The optional readings are not required but will be helpful in getting a wider and/or deeper understanding of the topic.

**Assignment and Grades:**

Below is the breakdown of the final grading:

- Weekly lab exercises: 55% (5% each, 11 exercises)
- Course project: 40%
  - One-page proposal: 5%
  - Mid-term presentation: 10%
  - Final presentation: 10%
  - Final report: 15%
- Participation: 5%
- Extra Credit: 5%

**Weekly exercises:** we will have 11 lab sessions using ArcGIS to explore urban communities. The lab manuals will be either from the textbook or distributed as hard copies in the lecture sessions. Students are required to submit a deliverable to show the completion of the exercises by the beginning of the next week’s session.

**Course project:** each student is required to complete one course project individually. The student can choose the topics on their own, as long as the topic: (1) is related to the spatial concepts of the cities; (2) requires GIS work and (3) includes mapping and data visualization.

There are four deliverables of the final project throughout the semester:
First, the students are required to submit a one-page proposal to identify the topic, scope and data sources of the project in Week 4. The instructor will respond to the proposal by either approving it or providing recommendations.

Second, students are required to present the progress of the project at Week 9. In the presentation, the student should report the progress of the project by showing (1) descriptive statistics for the data, (2) at least one map and (3) future work plan.

Third, the students are required to have a 10-minute presentation of the final project at Week 14. Both the quality of work and the quality of the presentation will be evaluated.

Fourth, the students are required to submit a five-page, double-space final report with at least three maps (maps do not count towards the total pages).

Here are some examples on potential final project topics: (1) analyzing the racial segregation of Los Angeles County using data from 1980 Census, 1990 Census and 2010 Census; (2) measuring the gentrification of central cities using data from Minneapolis, MN, Seattle, WA and Cleveland, OH; (3) mapping the starting points of all taxi trips after a New York Jets football game.

**Participation:** Students should actively participate in the lecture sections by joining discussions, answering questions in person or in pop quizzes.

**Extra credit:** The instructor will post reading response questions for each week’s optional readings. The students can answer those questions in essay format in one or two pages double spaced and bring hard copies to the first meeting of each week. Each reading response counts for 1% of the total score, up to 5%.

**Late assignments:**

All the deliverables are required to be submitted to the Blackboard system by 11:59pm on the due date. Without **PRIOR** approval of the instructor, the late assignment submitted within one week, two weeks and more of the due date will be penalized by 20%, 40% and 60% of the maximum possible grade, respectively.

**ArcGIS software availability:**

The ArcGIS software packages are installed on desktops and on-loan laptops in computing labs managed by USC Information Technology Services (ITS). For locations and hours, see: [https://itservices.usc.edu/spaces/computingcenters/](https://itservices.usc.edu/spaces/computingcenters/).
**USC disability services:**

I am always happy to work with USC’s Office of Disability Services to accommodate student needs. Students should contact the Office of Disability Services in the first two weeks of the semester, or prior to the semester. I allow accommodations as recommended by the Disability Services office, but I will only allow accommodations specifically recommended by that office in writing and in advance of assignment due dates. Please allow enough time for coordination between the Disability Services office and me. Consult this web page for more information: [http://scampus.usc.edu/disability-services/](http://scampus.usc.edu/disability-services/).

**Academic honesty:**

Students should consult USC’s academic honesty guidelines, available at [http://www.usc.edu/student-affairs/student-conduct/grad_ai.htm](http://www.usc.edu/student-affairs/student-conduct/grad_ai.htm) and [http://www.usc.edu/student-affairs/SJACS/forms/GradIntegrity.pdf](http://www.usc.edu/student-affairs/SJACS/forms/GradIntegrity.pdf). Penalties for violations of academic honesty will be as severe as are allowed by USC’s guidelines, and typically involve a minimum of a zero grade for the assignment for minor infractions, with larger penalties for more serious cases. Cutting and pasting material from the web is only acceptable if the material is indicated to be a direct quote, with the source attributed. All ideas and information from external sources must be properly attributed to that source.

**Schedule of topics and reading list:**

**Week 1: Introduction (Jan 9 – Jan 13)**

Topics:
- Urban geography as a discipline, Chicago School, L.A. School, data and spatial analysis, introductory GIS.

Reading:
- Greene and Pick, Chap 1.

Lab exercise:
- Metropolitan growth and decline patterns, 2000-2008 (Greene and Pick, pp 36-40).
  
  *Due: 11:59pm the day before the next lab session.*
Week 2: Defining the metropolis (Jan 16 – Jan 20)

Topics:
Different definitions of metropolis: Metropolitan Statistical Area, Urbanized Area, built-up areas, census and American Community Survey.

Reading:
Greene and Pick, Chap 2.

Lab exercise:
Different urban definitions for Tokyo and Springfield, MO. (Greene and Pick, pp 67-72)

Due: 11:59pm the day before the next lab session.

Week 3: The internal structure of cities (Jan 23 – Jan 27)

Topics:
Concentric zone model, sector model, multiple nuclei model, density gradients

Reading:
Greene and Pick, Chap 3.

Lab exercise:
Density gradients of Mexico City (Greene and Pick, pp 102-105)

Due: 11:59pm the day before the next lab session.

Week 4: System of cities (Jan 30 – Feb 3)

Due: one-page proposal (in hard copy) for the final project before the beginning of the class

Topics:
Central-place theory, rank-size rule, American urban system, global cities

Reading:
Greene and Pick, Chap 4.

Lab exercise:

Rank changes for China’s urban agglomerations: 1985-2005 (Greene and Pick, pp.134-138)

*Due: 11:59pm the day before the next lab session.*

Week 5: Individual meetings with instructor, no class (Feb 6 – Feb 10)

*Each student schedules a 20-minute individual meeting with the instructor to discuss their final project.*

Readings:


Week 6: Neighborhoods (Feb 13 – Feb 17)

Topics:

Definition of neighborhoods, gated communities, racial segregation, gentrification, measuring neighborhood change using Markov chains

Reading:

Greene and Pick, Chap 5.


Lab exercise:

Measuring neighborhood change in St. Louis: 1990-2000 (Greene and Pick, pp.166-170)

*Due: 11:59pm the day before the next lab session.*
Week 7: Migration and residential mobility (Feb 20 – Feb 24)

Topics:
- Factors impacting migration, measuring migration, migration patterns in the US and China

Reading:
- Greene and Pick, Chap 6.

Lab exercise:
- Evaluating accessibility for four sites in Los Angeles County, CA (Greene and Pick, pp.200-203)

  *Due: 11:59pm the day before the next lab session.*

Week 8: Race, ethnicity, gender and poverty (Feb 27 – March 3)

Topics:
- Ethnic enclaves, measuring ethnical diversity, racial segregation, gender, poverty

Reading:
- Greene and Pick, Chap 7

Lab exercise:
- Spatial dispersion of minorities in Dallas, TX (Greene and Pick, pp.235-237)

  *Due: 11:59pm the day before the next lab session.*

Week 9: mid-term presentation (March 6 – March 10)

*The presentation slides have to be upload to Blackboard by 11:59pm one day before the presentation.*
Spring break: March 13 – March 17

Week 10: Industrial location and cities (March 20 – March 24)

Topics:
- SIC vs NACIS, economic base theory, location quotient, economic geography

Reading:
- Greene and Pick, Chap 8

Lab exercise:
- Clustering of industrial activity for the city of Chicago, IL. (Greene and Pick, pp. 268-272)

Due: 11:59pm the day before the next lab session.

Week 11: Urban core vs. edge city (March 27 – March 31)

Topics:
- Central cities, urban sprawl, transportation and urban sprawl, edge cities, smart growth

Reading:
- Greene and Pick, Chap 9

Lab exercise:

Due: 11:59pm the day before the next lab session.

Week 12: City and environment (April 3 – April 7)

Topics:
Urban environment, climate change, urban land use and environment, water resources, urban flooding, solid wastes, air pollution, environment justice

Reading:
Greene and Pick, Chap 10

Lab exercise:
Air pollution and child asthma in Chicago, IL. (Greene and Pick, pp. 343-349)
**Due: 11:59pm the day before the next lab session.**

Week 13: Urban and regional planning (April 10 – April 14)

Topics:
Garden cities, zoning, modern planning, impact of technology, planning in the developing economies.

Reading:
Greene and Pick, Chap 11

Lab exercise:
Population growth impacts in an urban fringe watershed in Kane County, IL. (Greene and Pick, pp. 379-388)
**Due: 11:59pm the day before the second meeting in the next week.**

Week 14: Wrap-up and review (April 17 – April 21)

Topics:
Reviewing the basic concepts of the course, project Q&As.

Reading:

Lab exercise:
None
Week 15: Final project presentations (April 24 – April 28)

*The presentation slides has to be upload to Blackboard by 11:59pm one day before the presentation.*

Finals Week (May 3 – May 10)

*The final report of the project is due by 11:59pm on the corresponding exam date in the final exam week.*