

**GGS-306**  
**URBAN GEOGRAPHY – A GIS APPROACH**  
Spring 2015<sup>1</sup>

3:00 pm - 4:15 pm	Wed	Exploratory Hall 2310	Jan 20, 2015 - May 13, 2015
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**Class Location: Exploratory Hall 2310, Hybrid Class Model (partially online, partially in classroom)**

**Instructor:**

Dr. Karen Owen, kowen@gmu.edu

Office hours: By appointment and *Virtual Office Hrs: Sun. evenings 7:30-8:30PM (Blackboard Collaborate)*

**Required Text:**

**Exploring the Urban Community**

*A GIS Approach, 2<sup>nd</sup> Edition (by: Greene & Pick)*

ISBN-10: 0321751590

Prentice Hall

**Course Catalog Description:**

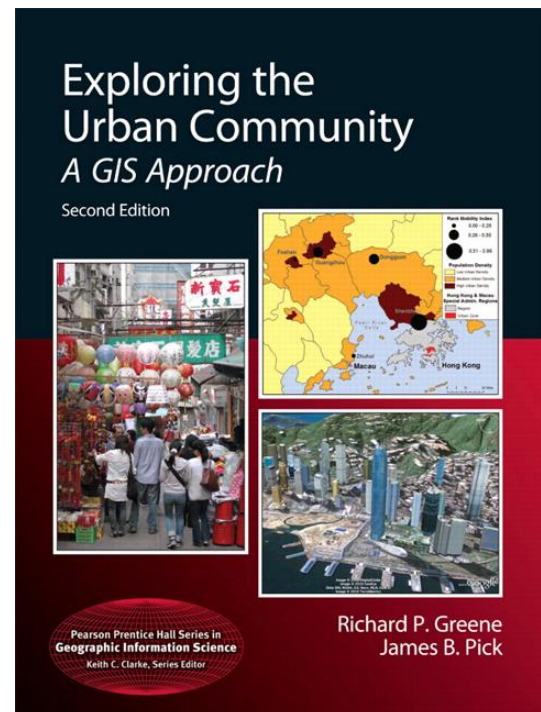
Structure and internal differentiation of cities. Variety of perspectives on nature of cities, and opportunities for intensive use of space. Urban problems and alternatives in their spatial context.

**Expanded Description:**

This course will focus on the nature, structure, patterns, population and human-environment dynamics of the world's cities from a GIS perspective. Many of the coming global and environmental challenges will be magnified in the *developing* world, so the course will provide a distinctly international view of the urban geography of cities. Topics covered include impacts and trends in migration, spatial structure and meaning of 'neighborhoods', accessibility of public services and transport networks, and population distribution juxtaposed with environmental and man-made hazards affecting urban areas. The course will require the use of Google Earth and ArcMap software to complete many of the exercises, and to afford students the opportunity to conduct urban analysis using GIS tools and current spatial and image-based data sources.

**Prerequisites:** Although there are no course prerequisites, you should have Junior Standing and some background in Geography and GIS. If you do not have a geography or GIS background, you should expect to spend considerably more time on the labs and exercises, and must be willing to complete additional tutorials to help you with this. GMU has ample opportunities to get up to speed in GIS, and it is an extremely useful career skill. For GIS help, see:

- GGS Student Lab (<http://ggs.gmu.edu/GGSLabs/GGSLabs.html>)



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<sup>1</sup> Note – since this is a hybrid class, the Wednesday in-class meeting will be supplemented with lab exercises and outside activities, to include several pre-recorded lecture videos, webinars, and urban evaluations. Webinars will occur at fixed times and require participation.

- Geospatial Services at Fenwick Library – includes numerous tutorials (<http://infoguides.gmu.edu/content.php?pid=11647&sid=103480>)
- Purchase a separate text with a 180-day student license of ArcGIS (many ESRI Press books have this, and usually cost ~\$50-\$75)

### Student Learning Objectives:

By completing this course students will be able to:

1. Explain how cities are defined geographically and socially, and give examples. Define poverty and give examples.
2. Evaluate major theories of urban morphology and growth; compare and contrast their application to a variety of cities and time periods
3. Demonstrate how cities are complex systems of human, environmental, infrastructural, economic, and social forces – and explain how these systems change over time
4. Define a *neighborhood* in a variety of ways using census, parcel, administrative, social, and spatial constructs
5. Using a GIS, apply metrics such as population density gradients, rank mobility index, Markov chain predictive analysis, population potential, index of dissimilarity, mean center, segregation indices, spatial concentration and location buffering to describe and analyze urban characteristics
6. Use Google Earth, Wikimapia, and OpenStreetmap and other social media tools and websites to geographically explore the physical structure of cities and neighborhoods, understanding gradient and magnitude of urban expansion
7. Summarize the major stressors that impact urban living conditions in developing countries
8. Compare, contrast and evaluate historical and political reasons for expansion and change in megacities of the developing world
9. Describe and quantify variation in socioeconomic zones throughout a city using geospatial data

### Policies

- Deduction of 25% of the score for each week an assignment is late (eg, assignment handed in later than 3PM on due date receives max score of 75%, assignment handed in later than start of class on due date + 1 week receives max score of 50%, and so on). See me privately for extenuating circumstances.
- All materials submitted to meet the grading criteria must be created in accordance with the student Honor Code at <http://oai.gmu.edu/the-mason-honor-code-2/>
- Assignments must be submitted on Courses Blackboard Site. Some online webinars will be held using Blackboard Collaborate. Some lectures must be viewed in the form of videos posted to Blackboard course site.
- Presentations must be done using your own laptops. Classrooms will provide a VGA port and overhead display equipment.
- Please do not sleep in my class, smoke smokeless tobacco products, take cell phone calls, or type loudly or talk loudly in such a way that makes it difficult to concentrate. My barometer is: you should refrain from activities that make it difficult for fellow-students to think or concentrate.
- Students are encouraged to work together to complete assignments (except for the megacities project), but final maps, essays and submitted homework **must be the student's own work**. You may seek laboratory help from classmates, but you must be able to replicate the work on your own computer/login by the time the homework is submitted. Written answers and submitted maps must also be your own work.

## Assessment

- 5% - Class Participation, attendance will be taken for on-campus classes **and** instructor-hosted (live) webinars (5 points). You can still receive full credit for assessment if you miss up to 2 on-campus classes as long as you participate in the instructor-led webinars.
- 40% - 5 Labs (10 points each – 4 top-scoring labs included in lab grade - lowest lab score is dropped) Labs are due by 3PM on due date.
- 20% - Midterm Exam (Multiple Choice, T/F, Short Answer) (20 points)
- 20% - Megacity Research Paper and Class Presentation – 10 min presentation + **5-page report**<sup>2</sup> (20 points). See the adjusted rubric for Megacities.
- 15% - Final Exam (take-home/online – you will choose 4 of 5 essay questions requiring you to think critically and apply concepts covered throughout the course). (15 points)

Note – extra credit opportunities will be at discretion of professor.

## Schedule

(Note: *the content of this syllabus is subject to change, we anticipate meeting in-person once per week with other assignments completed remotely, as field work, or on the Internet*). Reading assignments posted to Blackboard.

Week 1	Course introduction & content, review grading policies, honor code, megacity presentation date signups, Read Chapter 1 <u>prior to class</u> , secure access to Google Earth and ArcGIS Desktop software. Review Chapter 1. Complete un-graded Exercise p. 36-37 (no essay)
Week 2	Read Chapter 2 prior to class. Review Chapter 2 & 3 Complete megacity presentation date signups
Week 3	Read Chapter 3 prior to class. Discuss lab exercises. Review Chapter 3, Chapter 4 (only 4.1, 4.2 on Central Place Theory, & 4.6.2 on Rank Mobility Index). Begin reading Chapter 5.
Week 4	Read Chapter 5 prior to class. Review Chapter 5, Study Chapters 1, 2, 3, parts of 4, & 5 for MidTerm
Week 5	Mid Term Exam (online)
Week 6	Review instructor slides. View Instructor video. <b>GNS and admin boundaries exercise</b> . No in-class meeting this week. 1-2 points Extra Credit available this week only: Video assignment, see BB home page under "Assignments"
Week 7	(4 <sup>th</sup> Lab Due TBA – will require ArcGIS) Complete mid-course student survey (provides instructor feedback) Read <b>Chapter 6</b> prior to class. Review Mid-Term exam results.
Week 8	SPRING BREAK – NO CLASS OR HOMEWORK!
Week 9	<b>Read Chapter 7</b> (skip 7.9 & 7.11) prior to class. Review Chapter 7. Instructor Demos useful for Megacity projects.
Week 10	Read Chapter 10– Submit introductory paragraph for megacity project (describes your selected option, research approach and data sources) due 3PM on due date.

<sup>2</sup> Note, due to increasing the value of the project by 10 points, the paper must now be 5 pages long, double spaced.

Week 11	<b>5<sup>th</sup> lab due.</b> ArcGIS Exercise p. 345
Week 12	Review Lab 5. Meet for In-class discussion of Chapter 10.
Week 13	<b>All Megacity Papers are due. Megacity Presentations – 1<sup>st</sup> block (10 min each).</b> If you are presenting this day, your <b>megacity presentation should be submitted to Blackboard by 3PM on due date.</b>
Week 14	<b>Megacity Presentations – 2<sup>nd</sup> block (10 min each).</b> If you are presenting this day, your megacity <b>presentation should be submitted to Blackboard by 3PM on due date.</b> The paper should have been submitted by <b>3PM on due date.</b>
Week 15	Course Review for Final Exam.
Week 16	Take-home essay final exam due on Blackboard, by 3PM on due date.

GMU Computer Lab locations all contain ArcMap and Google Earth software. Locations & hours are:

**Fairfax: Innovation Hall, Room 301, 703-993-3427**

Monday through Thursday: 10 a.m. to 10 p.m.

Friday through Sunday: Closed

**Fairfax: Johnson Center, Room 342, 703-993-3446**

Monday through Thursday: 7:30 a.m. to 12 a.m.

Friday: 7:30 a.m. to 8 p.m.

Saturday: 9 a.m. to 8 p.m.

Sunday: 9 a.m. to 12 a.m.

**Arlington: Founders Hall, Room 211, 703-993-8226 (for Arlington, hours may vary during breaks, holidays, weekends)**

Monday through Friday: 9 a.m. to 10 p.m.

Saturday and Sunday: 9 a.m. to 5 p.m.

**Prince William: Bull Run Hall, Room 250, 703-993-8499**

Monday through Thursday: 8:30 a.m. to 8:30 p.m.

Friday: 8:30 a.m. to 5 p.m.

Saturday and Sunday: Closed

**Virtual Computing Lab** – uses Windows Remote Desktop to load ArcMap but you must make a reservation in advance, and can take up to 15 minutes to load the software to enable your use. See: <http://doit.gmu.edu/studentSection.asp?page=vcl>