

Urban Design Workshop – Fall 2012

School of Geographical Sciences and Urban Planning
School of Sustainability
Arizona State University

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Course Description

This is a “hybrid” course that uses on-line delivery of course content coupled with weekly “in-person” meetings held in the computer lab (room 5505). The meetings are set up for the purpose of answering student questions, fostering group dialogue, and helping students work through the material.

The course provides students with the tools they need to translate ideas about the future direction of urban development in design terms. The course will offer 10 modules of step-by-step instruction on the “how to” of urban design: how to create urban design plans, models and graphics using GIS, Sketchup, and graphics editing software.

An important aspect of the course is that all software used in this course is open-source. Students will learn how to access this freely available software and make use of it to create their own urban design interventions. With these analytical and graphical tools, the course walks students through the creation of urban design proposals.

The following principles underlie the approach of this course:

1. Each exercise assumes that cities should be designed for diversity – a mix of people, uses, and functions.
2. Each exercise assumes that cities should be scaled to the walking human body rather than, for the most part, the fast-moving private vehicle.
3. The exercises are intended for places that are already existing – not clean slates. In the parlance of urban planning, this is urban design for infill, not greenfields.
4. Because of #3 above, the urban designs presented tend to be modest and incremental.
5. There is a social rationale to the design ideas. I am specifically concerned with relating social data to urban design; we use urban design to bridge the gap that

- often exists between social data and built form. Thus most exercises begin with one or two steps that are analytical – often involving the evaluation of social data.
6. Finally, I emphasize the importance of articulating more than one design proposal, and this is approached mainly by way of constructing information in terms of layers. By breaking down urban places into a series of layers, it is possible to create alternatives by turning layers on and off. In the “real world”, urban design is an iterative process. Therefore, urban designers should be trained in the art of presenting alternatives. One way to do this is to think geographically, in layers.

Outline of course

Preliminaries

Software. Students will need three kinds of software to do these exercises: graphical packages, GIS software which allows spatial analysis in addition to graphical manipulation, and SketchUp, which is a 3-dimensional modeling tool. Google Earth is also used.

The good news is that open source software that functions like the commercial software products can be downloaded for free. I will show you exactly how to do that.

Data. To do these exercises, students will need GIS data, which I will provide.

Parcels – represented as polygons, and containing land use and other variables
Building outlines – represented as polygons

Streets – represented as lines, and containing information on street segments like length and street name.

We will use these (as well as some other layers) for a section of Chicago – the Bridgeport neighborhood, which has a population of about 34,000. I chose this area because it is relatively diverse and relatively dense, making it an interesting area to analyze and design. But keep in mind that the exercises can apply to any location.

Symbols. For some exercises, students will make use of symbols to communicate design strategies. I provide video demonstration of the steps involved in creating symbols.

I divide the 10 exercises of this course into three groups: frameworks, basics, and recurrent issues.

Group 1: Frameworks

There are certain issues in urban design that are especially important to look at in broad terms, beyond a specific location, a segment of street, or an individual block or building. Such design issues require a “big picture” view. Design

intervention is about establishing a framework.

1. Neighborhoods - Neighborhoods, variously defined, are the building blocks of the urban pattern.
2. Transects - The transect considers patterns of urban intensity, ranging from rural to urban.
3. Connections - Connectivity across multiple realms is essential.

Group 2: Basics

The best designed neighborhoods have a few basic qualities in common. They often have a mix of people and uses, and good access to goods and services (proximity). This group of exercises looks at these basic features in detail.

4. Centers - What neighborhood centers should consist of, how they should function, and what should be around them are all important questions for urban designers.
5. Edges - Edges have multiple functions and can be made permeable.
6. Mix - Design can play a role in supporting the mix of uses and the mix of people in a neighborhood.
7. Proximity - Design can help enhance proximities among people, goods, and services.

Group 3: Recurrent Issues

There are certain issues in urban design that are especially recurrent. Three of the most common—density, parking, and traffic—are generally regarded as problems to be solved rather than assets to be strengthened or preserved. Often, however, these issues can be turned into assets rather than problems by applying good design principles.

8. Density - Density, if designed right, can be regarded as a community asset.
9. Parking - The storage of cars can be detrimental to neighborhoods, but design can mitigate the negative effects.
10. Traffic - High-traffic areas should be calmed in urban neighborhoods; the needs of pedestrians should be paramount.

Grading

There will be 10 assignments, corresponding to the 10 exercises. While I encourage you to work through all assignments, you have the option of dropping two – so you will be graded on 8 assignments. You might want to complete all 10 and drop the 2 lowest scores.

Assignments are due by midnight on the due date. Each day late will result in 10% grade reduction.

The assignments will consist of showing output generated by working through each exercise – i.e., showing evidence that you worked through the assignment and that you understand the concepts. There will be some questions to answer and some specific requirements about turning in graphical content. All submissions will be electronic, in the form of pdfs.

Schedule

Important – please review the materials **before each class.

Week 1 – Aug. 29	First class
Week 2 – Sep. 5	Introduction to course Software and data setup
Week 3 – Sep. 12	Elements & symbols Getting started with QGIS
Week 4-5 – Sep. 19/26	Neighborhoods Assignment 1 due Sep. 26
Week 6-7 – Oct. 3/10	Transects Assignment 2 due Oct. 10
Week 8 – Oct. 17	Connections Assignment 3 due Oct. 24
Week 9 – Oct. 24	Centers Assignment 4 due Oct. 31
Week 10 – Oct. 31	Edges Assignment 5 due Nov. 7
Week 11 – Nov. 7	Mix Assignment 6 due Nov. 14
Week 12 – Nov. 14	Proximity Assignment 7 due Nov. 21
Week 13 – Nov. 21	Density Assignment 8 due Nov. 28
Week 14 – Nov. 28	Parking Assignment 9 due Dec. 5
Week 15 – Dec. 5	Traffic

Assignment 10 due Dec. 12

Class Policies

The ASU student academic integrity policy lists violations in detail. These violations fall into five broad areas that include but are not limited to: cheating on an academic evaluation or assignment, plagiarizing, academic deceit, such as fabricating data or information, aiding academic integrity policy violations and inappropriately collaborating, or falsifying academic records. For more information about the ASU student academic integrity policy, please use the following web link <http://provost.asu.edu/academicintegrity>

Disability Accommodations: Qualified students with disabilities who will require disability accommodations in this class are encouraged to make their requests to me at the beginning of the semester either during office hours or by appointment.

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Assignment 1 – Neighborhoods

Due – September 26, 2012, midnight

This assignment consists of producing 4 maps and answering some related questions. You will turn in 4 maps in pdf form, and a separate word doc with responses to the associated questions.

To produce the maps, please use QGIS's map composer (not part of my videos). The map composer is a way to design a printable map. Don't forget to add a north arrow, scale bar and legend.

Check out youtube video #6 for help with this:
<http://www.youtube.com/user/jarretttotton>

Submit the materials through Blackboard.

1. Neighborhood sizes. For any location that has meaning for you (the area where you live now? Or where you're from?), add aerial or other imagery in QGIS. Draw shapes that represent the following neighborhood sizes:

- 40 acres (usually seen as a minimum; a 1/4-mile square) = 16 ha
- 125 acres (a quarter-mile pedestrian shed) = 50 ha
- 160 acres (a half-mile square) = 64 ha
- 500 acres (a half-mile pedestrian shed) = 202 ha

Here are the steps:

- open Google Earth
- type in a location
- click on "add polygon"
- for now, ignore the dialog box that pops up
- draw a polygon to cover the area of interest
- name the polygon in the dialog box
- right click on the polygon name in the list under "places"
- select "save place as"
- change the format to "kml"
- give it a name and save it
- open QGIS
- select "add vector layer"

- add the kml file you just created
- select Plugin -> open layers plugin and select a base map to add
- zoom out to the area you want to investigate; a new base map will load
- select the “measure area” tool to investigate different sized neighborhoods
- create a new layer to draw the neighborhoods

Questions – what area did you choose and why? What neighborhood size seems most appropriate for your conception of what a neighborhood is?

2. Intersections and buffers. Work through the step 2 videos to add a layer of potential neighborhood centers based on intersections. Add aerial imagery to investigate further, as described in the video.

Question – what intersections did you exclude after you added the aerial images, and why?

3. Delineation of edges. Identify edges using aerial photos. Draw shapes that identify edges.

Questions: What “blockages” did you find? Characterize them and describe how you think they impact neighborhood structure (do they help define it? Or, do they limit the ability of some areas to organize as neighborhoods?).

4. Final neighborhood map. Produce a final map showing your delineation of neighborhood structure.

Questions: What layers did you use? Briefly describe how you created neighborhoods of different sizes in response to edges, the strength of centers, the location of thoroughfares, commercial spaces, and political and demographic information.

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Assignment 2 – Transects

Due – October 10, 2012, midnight

The “transect” is an analytical method that organizes the elements of urbanism—building, lot, land use, street—into environments that vary along a continuum that ranges from less intensity (rural) to high intensity (urban).

In this exercise, you will answer a number of questions and create several maps. As with Exercise 1, use QGIS’s map composer to organize your maps. You can use word (then save as pdf) to answer the questions and organize the final snapshots of your T-zones.

Submit the materials through Blackboard.

Answer the following questions:

1. Visit SmartCode Central <http://www.smartcodecentral.org/> and look through the different modules posted. Provide an example from one of the modules of how an element (e.g., landscape, lighting, housing, signs) in a T-3 zone is different from one in a T-5 or T-6 zone.
2. How is frontage type in T-4 different from frontage type in T-6?
3. How is the percentage of T-5 different in a CLD as opposed to a TOD?
4. Browse the collection of transect photos at <http://transect-collection.org/>. Pick a favorite example for zones T-3 through T-6. Save as small jpgs, insert in Word, and label your locations.
5. What is the difference between a square, a plaza, and a green? (Hint: review step 6)

Produce the following maps:

1. Land use intensity, by block (step 3).
2. Blocks adjacent to major streets (step 4).

3. Density (step 5).

4. Final map of transect zones (step 6).

Finally, complete step 8 and provide a snapshot of a representative block (either streetview or aerial) for each of your T-zones. Save as small jpgs, insert in Word, and label your T-zones. Also provide the street intersection near each location.

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Assignment 3 – Connectivity

Due – October 24, 2012, midnight

Save your QGIS, Inkscape and Sketchup graphics as jpegs and insert into your Word document. Use Word to answer the questions and organize your graphics. Print everything as a single pdf document.

Submit the pdf through Blackboard.

Answer the following questions:

1. Steps 1-5 show different ways of looking at connectivity priority areas:
 - Clusters of activity spaces
 - Problem areas
 - Regional places
 - Connection priorities
 - Neighborhood center buffers
 - a. Referring to the required map #1 (below), briefly describe what two areas you selected as being the highest priority for connectivity. What layers did you base this on?
 - b. Calculate the walkscore for each of your two priority areas. What range does it fall in (walker's paradise, very walkable, etc.). Do you think this rating justified? Briefly elaborate.
2. Referring to #2 below, describe the improvements you added around the gateway.
3. What is the approximate address of the building you textured for graphic #3 below?
4. Describe the graphic you produced in Inkscape. What improvements did you suggest to improve connectivity? What was the problem being addressed?

Produce the following maps and graphics:

1. Produce a map showing the final selection of at least two connectivity priority areas (steps 1 to 5). Label each area. One of the areas should be a place where it makes sense to put a gateway.
2. Using Sketchup, produce a graphic with some kind of gateway or entrance for one of your connectivity priority areas (preferably a regional connector). Use other improvements near the gateway as described in the video.
3. Change the dimension of your model as described in step 6. Produce a graphic showing a photo textured building (near your priority area) that is correctly scaled to your model.
4. Use Inkscape to produce a 2D graphic for your second intervention area.

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Assignment 4 – Centers

Due – October 31, 2012, midnight

You will only need to turn in 3 graphics for this exercise. There are no questions to answer – however, you should save your graphics as jpegs and insert them into a Word document so that you can label your graphics. **Provide detailed captions that describe what you did.**

Print everything as a single pdf document. Submit the pdf through Blackboard.

Produce the following 3 graphics:

1. Produce a version of the 2nd graphic (green, grey and black) shown under step 2. Use fewer circles.
2. Use Gimp to produce a realistic design for space enhancement (step 6). It does not need to be an entranceway or a school site, but it does need to involve pulling in an image into a photo (and isolating the image appropriately).
3. Produce a sketchup model showing the conversion of a commercial area to a neighborhood center. Use parts of the model provided on the course website (“commcenterideas.skp”). You can also pull in other models. Export your model as a 2D graphic.

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Assignment 5 – Edges

Due – November 7, 2012, midnight

Make sure you watch all videos before doing this exercise.

For this exercise, you will turn in 2 graphics and answer a few questions. Save your graphics as jpegs and insert them into a Word document that also includes your answers to the associated questions.

Print everything as a single pdf document. Submit the pdf through Blackboard.

Answer the following questions:

1. What area did you select for design intervention? Briefly describe the criteria you used to make the selection.
2. Describe the edge you selected and what your design intervention was about. Also, for your sketchup model, what components did you add?

Produce the following 2 graphics:

1. Produce a graphic that shows your delineation of edge areas. Highlight the area you are focusing on for your design intervention (you can do this either in Inkscape by importing a jpg and adding text, or in QGIS with the text tool).
2. Use Sketchup to produce an integrative design for an edge area – but use a different area from the one shown in the video.

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Assignment 6 – Mix

Due – November 14, 2012, midnight

Make sure you watch all videos before doing this exercise.

For this exercise, you will turn in 2 graphics and answer a few questions. Save your graphics as jpegs and insert them into a Word document that also includes your answers to the associated questions.

*Note: Video 4a shows how to use Scribus to insert your graphics in a document. You can use Scribus or Word for this exercise.

Print everything as a single pdf document. Submit the pdf through Blackboard.

Answer the following questions:

1. What area did you select for design intervention? Briefly describe the criteria you used to make the selection.
2. Describe what your design intervention was about. What elements did you add?

Produce the following 2 graphics:

1. Produce a map that shows areas with different kinds and levels of mix. Use both the parcel layer and the census block layer.
2. Using Gimp, produce a graphic design where elements are inserted to create an environment that supports mix.

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Assignment 7 – Proximity

Due – November 21, 2012, midnight

Make sure you watch all videos before doing this exercise.

For this exercise, you will turn in 2 graphics and answer a few questions. Save your graphics as jpegs and insert them into a Word document that also includes your answers to the associated questions.

*Note: You can use Scribus or Word for this exercise.

Print everything as a single pdf document. Submit the pdf through Blackboard.

Answer the following questions:

1. What area did you select for design intervention? How did you define “need”? Briefly describe the criteria you used to make the selection.
2. Describe what your design intervention was about. What elements did you add and why did you add them (i.e., what purpose was served)?

Produce the following 2 graphics:

1. Produce a map that shows areas where access does not coincide with need.
2. Using Inkscape, produce a graphic design where elements are inserted in places of high need/low access.

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Assignment 8 – Density

Due – November 28, 2012, midnight

Make sure you watch all videos before doing this exercise.

For this exercise, you will turn in 2 graphics and answer a few questions. Save your graphics as jpegs and insert them into a Word document that also includes your answers to the associated questions.

*Note: You can use Scribus or Word for this exercise.

Print everything as a single pdf document. Submit the pdf through Blackboard.

Answer the following questions:

1. What area did you select that would be appropriate for increasing density? Briefly describe the criteria you used to make the selection.
2. Describe your strategy for increasing density. In what ways would your design intervention help neighborhood residents accept an increase in density?

Produce the following 2 graphics:

1. Produce a map that shows areas where an increase in housing density would be appropriate.
2. Using Sketchup, produce a model showing your proposal for new development – an increase in density. Make sure the model clearly distinguishes between existing development and proposed infill.

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Assignment 9 – Parking

Due – December 5, 2012, midnight

Make sure you watch all videos before doing this exercise.

The purpose of this exercise is to propose design strategies that minimize the negative effects of parking.

Step 1. Find parking lots located in strategic places.

Step 2. Compare parking lot redesign options for each strategically located parking lot.

Step 3. Use Sketchup to propose parking lot redesign ideas.

For this exercise, you will turn in 1 graphic and answer a few questions. Save your graphics as jpegs and insert them into a Word document that also includes your answers to the associated questions.

*Note: You can use Scribus or Word for this exercise.

Print everything as a single pdf document. Submit the pdf through Blackboard.

Answer the following questions:

1. What parking lot did you choose to focus on? Briefly describe the criteria you used to make the selection (how did you choose a parking lot located in a “strategic location”).
2. Describe your strategy for mitigating the negative effect of parking. Which option best describes your approach (i.e., eliminate, convert, buffer, or develop)?

Produce the following graphic:

1. Use Sketchup to propose a “retrofit” of an existing parking area. You can look for ideas here: <http://www.re-burbia.com/>. See especially the retrofit called “sprawl repair.”

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Assignment 10 – Traffic

Due – December 12, 2012, midnight

Make sure you watch all videos before doing this exercise.

The purpose of this exercise is to propose design strategies that minimize the negative effects of traffic.

The videos focus on three conditions:

1. Streets with potential conflict between local and through traffic;
2. Wide streets where the pedestrian realm is less than 50 percent of the total right-of-way; and
3. Wide streets with heavy traffic that also contain a high volume of pedestrians.

For this exercise, you will turn in 1 graphic and answer a few questions. Save your graphic as a jpeg and insert into a Word document that also includes your answers to the associated questions. You can use Scribus or Word for this exercise. Print everything as a single pdf document. Submit the pdf through Blackboard.

Answer the following questions:

1. What thoroughfares did you identify as being high priority areas for traffic calming (you can identify these by name by viewing in google earth)? What criteria did you use?
2. Research the parameters of different types of thoroughfares using the two sources given (the ITE manual and the SmartCode). What do you think are the key differences between a street, a commercial street, an avenue, and a boulevard?

Produce the following graphic:

1. Use Sketchup to propose a reconfigured intersection for traffic calming. Present the graphic with dimensions included, as shown in the video.