

## UP 503 | Physical Planning | Fall 2018

**Instructor:** Dustin Allred, [dallred2@illinois.edu](mailto:dallred2@illinois.edu)

**TA:** Sergio Contreras, [scontre2@illinois.edu](mailto:scontre2@illinois.edu)

**Time:** T, Th, 3:30pm – 4:50pm

**Room:** T – Temple Buell Hall, Room 223, Th – Wohlers Hall, Room 70

**Office Hours:**

Instructor – Th, 10:00am – 11:00am, Temple Buell Hall, Room M216

TA – W, 1:00pm – 2:00pm

**Prerequisite:** Graduate standing in DURP or consent of the instructor

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### Course Description

An urban area changes to keep pace with the shelter, work, recreation, shopping, and travel needs of its inhabitants. In accommodating these human activities, land is consumed, and current trends suggest that land in the United States is being consumed by expanding urban areas at an unprecedented rate. For instance, between 1990 and 2000 in the St. Louis metropolitan region, the urbanized area grew by around 50% even though it's population grew by less than 1%. This suggests that the physical space our cities occupy is changing and evolving without, or in some cases despite, changes in population.

This consumption of land triggers several questions:

- What do we do on the land?
- How much land do we use?
- What is the type, manner, and intensity of our use of land?
- What are the environmental, economic, and social consequences of land use change?

Physical planning – **managing the way land is used and reused to support human activities** – has been a significant and longstanding part of a professional planner's responsibilities. Physical planning in the United States is typically a function of local government. Physical planners use land-use controls (ordinances and regulations) along with site plan review to shape physical planning decisions.

### Course Objectives

This course seeks to prepare you to deal with a variety of complexities that characterize the practice of physical planning through a series of hands-on tasks. Rather than learn about issues at an arm's length, you will engage intensely with information and through this experience learn about the possibilities and limitations in physical planning. These tasks will also introduce you to software tools commonly used to analyze and communicate planning information.

By the end of this course you should:

- Understand contemporary, effective physical planning
- Understand the process of physical planning decisions
- Know how to use Adobe software applications to communicate planning analysis and create professional reports
- Know how to use digital spatial data to create effective maps

### **Course Format**

To achieve these objectives, the course brings together some preliminary work and key components all built around planning for physical development at both the regional and site scale. Steps in the semester long process conclude with a midterm natural systems suitability report and a final site plan report to include:

- Preliminaries
  - Getting familiar with the built environment
  - Map interpretation and making skills
  - Software introductions
- Regional and site scale natural systems analysis
- Socio-economic analysis
- Site engineering analysis
- Site layout and small area plans

All components will be worked on individually. While you are encouraged to discuss the work with each other and with the course instructors, the work and material you hand in must be your own.

Deliverables in the course will include one assignment per week and two reports. The suitability analysis report will be due towards the middle of the semester. The second half of the semester will focus on site scale planning concluding in a site plan report. For both sections of the course, intermediate weekly assignments will build towards the applicable report; therefore it is crucial that you complete assignments on time, as this work will be useful for synthesizing your reports.

Course content will be covered in lectures and discussions, and labs. Lab sessions will introduce both software applications and analytical frameworks that will be applied in completing weekly assignments. These sessions will be a hands-on opportunity to become familiar with common software applications used in planning practice.

### **Course Materials**

There are no required books for this course and all required readings will be made available online via the course Compass site. This course involves considerable computer-based work so

be sure you are able to access the Department's computing facilities. The specialized software needed to complete assignments and reports is available on the desktop computers in the Department's "computer lab" (room 227) and via the remote desktop server (RDP). Let the instructor know if you are unable to login to the Department's computing facilities.

### Learning Philosophy

This course is designed around the idea of learning by doing. You grasp concepts and develop skills by applying them in a real-world situation rather than only reading about them. You engage your classmates and instructors in conversations about the work. While this is often a more effective way to learn the material covered in this course, you must expect to spend more time working on tasks than you would in a course with only reading and homework assignments.

All of the course material is available on the course Compass site, and it is critical that you read and understand all of this material. This will make classroom time more effective and enhance your experience in the course. Please inform the course instructor if there are any errors or discrepancies on this site.

### Course Evaluation

Student evaluation in the class will be based on participation, weekly assignments, and two reports. Class participation grades will reflect your command of the assigned readings and contribution to class discussions. **Attendance is mandatory, and any unexcused absence will reflect in your participation grade.** All other grades will depend on the quality of ideas generated and of the presentation of these ideas, on the effectiveness of responses to comments, and on the timely completion of work. For weekly assignment, late submissions will be penalized one point and subsequently one point for each week that they are further delayed. For reports, late assignments will be graded down one letter grade per day (half a letter grade if turned in after class on due date). If you must miss a class session due to special circumstance such as illness or family emergency, you should notify me via e-mail ([dallred2@illinois.edu](mailto:dallred2@illinois.edu)) as soon as possible. All assignments should be submitted to Compass on the due date unless otherwise noted. The course grade earned will be the weighted average of the following components:

Class participation	10%
Preliminary assignments (A1 through 4)	10%
Natural systems analysis assignments (A5a, b & c)	15%
Suitability report (A5)	20%
Site engineering and land use analysis assignments (A6a through f)	25%
Site plan report (A6)	20%

Transformation of numerical grade to letter grade will be according to the schedule below:

A	93-100	C+	77-79.9
A-	90-92.9	C	73-76.9
B+	87-89.9	C-	70-72.9
B	83-86.9	D+	67-69.9
B-	80-82.9	D	60-66.9

The general grading rubric for assignments is as follows:

An “A” assignment demonstrates original thought and synthesis of ideas and sophisticated, cogent analysis. It is clearly written and presented.

A “B” assignment includes above average analysis with appropriate evidence to support ideas. It is clearly written and presented.

A “C” assignment shows a basic level of understanding, with analysis limited to obvious arguments. Writing is competent. It is adequate work.

A “D” assignment misunderstands or misrepresents the material or is so poorly written that it obscures the analysis. It is inadequate work.

### Course Policies

**Student conduct:** From the University Student Code, Article 1, Part 3: Students enrolling in the University assume an obligation to conduct themselves in a manner compatible with the University’s function as an educational institution and suitable to members of the academic community. Students are responsible for knowing their rights and responsibilities as found in the student code at <http://www.admin.uiuc.edu/policy/code/index.html>.

**Special Circumstances:** Due to the participatory nature of this course, please communicate any expected or unexpected absences with the instructor as early as possible. Every effort will be made to work with students with unusual or unexpected obligations outside the course (family emergencies, health issues, participation in University sanctioned activities, etc.). Students with disabilities or special needs who require any accommodations to facilitate full participation and completion of the course should contact the instructor as soon as possible. Please refer to the Disability Resources and Educational Services at (<http://www.disability.illinois.edu/>) for more information.

**Safety and Security in the Classroom:** Emergencies can happen anywhere and at any time. It is important that we take a minute to prepare for a situation in which our safety or even our lives could depend on our ability to react quickly. When we're faced with any kind of emergency – like fire, severe weather or if someone is trying to hurt you – we have three options: Run, hide or fight. Please refer to the General Emergency Response Recommendations at <http://police.illinois.edu/dpsapp/wp-content/uploads/2016/08/syllabus-attachment.pdf> for more information.

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## Course Schedule

WEEK	DATE	TOPIC
1	28-Aug Tuesday	<p><u>Lecture/Discussion</u>: Course Introduction</p> <p><u>Readings</u>:</p> <ul style="list-style-type: none"> <li>Nino, F. S. (2016, October 20). The New Urban Agenda: Key Commitments. Retrieved October 23, 2017, from <a href="http://www.un.org/sustainabledevelopment/blog/2016/10/newurbanagenda/">http://www.un.org/sustainabledevelopment/blog/2016/10/newurbanagenda/</a></li> <li>Gabbatt, A. (2017, August 28). What makes Houston so vulnerable to serious floods? Retrieved October 23, 2017, from <a href="http://www.theguardian.com/us-news/2017/aug/28/houston-harvey-risk-floods-analysis">http://www.theguardian.com/us-news/2017/aug/28/houston-harvey-risk-floods-analysis</a></li> </ul> <p><u>Assignment</u>: 1 – Understanding Space, Distance, and Area</p>
1	30-Aug Thursday	<p><u>Lab</u>: Lab Intro</p> <p><u>Assignment</u>: 2 – Understanding Density</p> <p><b>Due: A1 – Understanding Space, Distance, and Area</b></p>
2	4-Sept Tuesday	<p><u>Lecture/Discussion</u>: Introduction to Physical Planning, Real Estate Markets, Land-Use and Reuse</p> <p><u>Readings</u>:</p> <ul style="list-style-type: none"> <li>Chapter 3: The City Image and Its Elements in Lynch, K. (1960). <i>The image of the city</i> (Vol. 11). MIT press.</li> <li>Chapter 1: Framing the Land Use Planning Process in Berke, P., Godschalk, D. R., Kaiser, E. J., &amp; Rodriguez, D. (2006). <i>Urban land use planning</i>. University of Illinois Press.</li> <li>Miles, M. E., Berns, G. L., Eppli, M. J., &amp; Weiss, M. A. (2007). <i>Real estate development: principles and process</i>. Urban Land Institute.</li> </ul> <p>Supplemental:</p> <ul style="list-style-type: none"> <li>Chapter 3: Developers and Their Partners</li> <li>Chapter 13: Stage Three: The Feasibility Study</li> </ul> <p>Appendix C in Lynch, K. (1960). <i>The image of the city</i> (Vol. 11). MIT press.</p>
2	6-Sept Thursday	<p><u>Lab</u>: Using Adobe Illustrator</p> <p><u>Assignment</u>: 3 – Diagramming with Adobe Illustrator</p> <p><b>Due: A2 – Understanding Density</b></p>
3	11-Sept	<p><u>Lecture/Discussion</u>: Suitability Analysis</p>

	Tuesday	<p><u>Reading:</u></p> <ul style="list-style-type: none"> <li>• Chapters 1: Landforms, 2: Maps, &amp; 3: The Constraints of Slope on Land Development in Anderson, L. T. (2000). <i>Planning the built Environment</i>. Planners Press.</li> <li>• Landscape Architecture Notes</li> </ul>
3	13-Sept Thursday	<p><u>Lab:</u> Graphic Representation and Making Planning Maps  <u>Assignment:</u> 4 – Making Maps with GIS and Illustrator  <b>Due: A3 – Diagramming with Adobe Illustrator</b></p>
4	18-Sept Tuesday	<p><u>Lecture/Discussion:</u> Natural Systems (Land)  <u>Readings:</u></p> <ul style="list-style-type: none"> <li>• Appendix A: Soils in Lynch, K., &amp; Hack, G. (1984). <i>Site Planning</i>. The MIT Press.</li> </ul> <p><u>Supplemental:</u></p> <ul style="list-style-type: none"> <li>• Soil Conservation Service. (1982). <i>Soil Survey of Champaign County, Illinois</i>. United States Department of Agriculture.</li> <li>• Natural Resources Conservation Service. (2003). <i>Soil Survey of Champaign County, Illinois</i>. United States Department of Agriculture.</li> <li>• Chapters 1, 5 &amp; 6 in Soil Survey Staff. (1999). <i>Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys</i>. United States Department of Agriculture.</li> </ul>
4	20-Sept Thursday	<p><u>Lab:</u> ArcGIS, Illustrator, and Soils  <u>Assignments:</u></p> <ul style="list-style-type: none"> <li>• 5 – Natural Systems Suitability Report</li> <li>• 5a – Slope and Soil Suitability</li> </ul> <p><b>Due: A4 – Making Maps with GIS and Illustrator</b></p>
5	25-Sept Tuesday	<p><u>Lecture/Discussion:</u> Natural Systems (Water)  <u>Readings:</u></p> <ul style="list-style-type: none"> <li>• Chapter 6: Storm Drainage in Anderson, L. T. (2000). <i>Planning the built environment</i>. Planners Press.</li> <li>• Landscape Architecture Notes: Delineating Watersheds</li> <li>• Chapter 3: Floodplain Data and Mapping in Lynch, K., &amp; Hack, G. (1984). <i>Site Planning</i>. The MIT Press.</li> </ul>
5	27-Sept Thursday	<p><u>Lab:</u> Water Analysis  <u>Assignment:</u> 5b – Water Suitability  <b>Due: A5a – Slope and Soil Suitability</b></p>

6	2-Oct Tuesday	<p><u>Lecture/Discussion</u>: Green Infrastructure</p> <p><u>Readings</u>:</p> <ul style="list-style-type: none"> <li>Benedict, M. A., &amp; McMahon, E. T. (2001). Green infrastructure: smart conservation for the 21st century.</li> </ul> <p>Supplemental:</p> <ul style="list-style-type: none"> <li>Chicago Wilderness. (2004). <i>Chicago Wilderness Green Infrastructure Vision: Final Report</i>. Chicago Wilderness, Chicago.</li> <li>The Illinois Environmental Protection Agency. (2010). <i>The Illinois Green Infrastructure Study</i>. The Illinois Environmental Protection Agency, Springfield.</li> <li>ARIES :: ARTificial Intelligence for Ecosystem Services. (n.d.). Retrieved October 16, 2013, from <a href="http://www.ariesonline.org/">http://www.ariesonline.org/</a></li> <li>Species Habitat Identification handout</li> </ul>
6	4-Oct Thursday	<p><u>Lab</u>: Working with In-Design</p> <p><u>Assignment</u>: 5c – Green Infrastructure</p> <p><b>Due: A5b – Water Suitability</b></p>
7	9-Oct Tuesday	<p><u>Lecture/Discussion</u>: The Natural Systems Suitability Report</p>
7	11-Oct Thursday	<p><u>Lab</u>: Work Session</p> <p><b>Due: A5c – Green Infrastructure</b></p>
8	16-Oct Tuesday	<p><u>Lecture/Discussion</u>: Context, Surroundings and Physical Planning</p> <p><u>Readings</u>:</p> <ul style="list-style-type: none"> <li>Vinod Aranha, Kalpa Baghasingh, Anuttama Dasgupta, Hagisa Ikeda, So Yang Jung, Seongho Kim, ... Andrea Schultz. (2006). <i>Urban Analysis and Design for Energy Efficient Affordable Housing</i> (Capstone). University of Illinois at Urbana-Champaign.</li> <li>Banerjee, T., &amp; Baer, W. C. (2013). <i>Beyond the neighborhood unit: Residential environments and public policy</i>. Springer Science &amp; Business Media.</li> </ul>
8	18-Oct Thursday	<p><u>Lab</u>: Working with Census Data</p> <p><u>Assignments</u>:</p> <ul style="list-style-type: none"> <li>6 – Site Plan Report</li> <li>6a – Socio-Economic Context and Social Suitability Analysis</li> </ul> <p><b>Due: A5 – Natural Systems Suitability Report</b></p>
9	23-Oct Tuesday	<p><u>Lecture/Discussion</u>: Feasibility Analysis and Real Estate Pro Formas</p> <p><u>Readings</u>:</p>



		<ul style="list-style-type: none"> <li>Lemmon, W. (2013, December 23). Pro-Forma 101. Retrieved October 23, 2017, from <a href="http://plannersweb.com/2013/12/proforma-101-getting-familiar-with-a-basic-tool-of-real-estate-analysis/">http://plannersweb.com/2013/12/proforma-101-getting-familiar-with-a-basic-tool-of-real-estate-analysis/</a></li> </ul> <p>Supplemental:</p> <ul style="list-style-type: none"> <li>Baily, M. N., Litan, R. E., &amp; Johnson, M. S. (2008). The origins of the financial crisis.</li> <li>Krugman On The Financial Crisis And Public Spending. (n.d.). Retrieved October 23, 2017, from <a href="http://www.npr.org/templates/story/story.php?storyId=95929699">http://www.npr.org/templates/story/story.php?storyId=95929699</a></li> </ul>
9	25-Oct Thursday	<p><u>Lab:</u> Using a Real Estate Pro Forma</p> <p><u>Assignment:</u> 6b – Real Estate Pro Forma Analysis</p> <p><b>Due: A6a – Socio-Economic Context and Social Suitability Analysis</b></p>
10	30-Oct Tuesday	<p><u>Lecture/Discussion:</u> Site Engineering Analysis – Stormwater Runoff</p> <p><u>Readings:</u></p> <ul style="list-style-type: none"> <li>County, P. G. (1999). Low-impact development design strategies: An integrated design approach. <i>Department of Environmental Resources, Programs and Planning Division, Prince George’s County, Maryland.</i> (skim)</li> </ul> <p>Supplemental:</p> <ul style="list-style-type: none"> <li>Clar, M. L., Barfield, B. J., &amp; O’Connor, T. P. (2004). Stormwater best management practice design guide volume 2 vegetative biofilters. <i>Environmental Protection Agency. Http://Nepis. Epa. Gov/Adobe/PDF/901X0B00. PDF (2/28/2010).</i></li> <li>Stormwater Runoff Calculations with a Spreadsheet in Gordon, S. I., &amp; Anderson, R. F. (1989). <i>Microcomputer applications in city planning and management.</i> Greenwood Publishing Group Inc.</li> </ul>
10	1-Nov Thursday	<p><u>Lab:</u> Stormwater Runoff Modeling</p> <p><u>Assignment:</u> 6c – Site Engineering Analysis – Stormwater Runoff</p> <p><b>Due: A6b – Real Estate Pro Forma Analysis</b></p>
11	6-Nov Tuesday	<p><u>Lecture/Discussion:</u> Site Engineering Analysis – Storm and Wastewater Management</p> <p><u>Reading:</u></p> <ul style="list-style-type: none"> <li>Chapter 5: Wastewater Management in Anderson, L. T. (2000). <i>Planning the built environment.</i> Planners Press.</li> </ul> <p>Supplemental:</p> <ul style="list-style-type: none"> <li>Water Supply Systems and Sanitary Sewers in Listokin, D., &amp; Walker, C. (2012). <i>The subdivision and site plan handbook.</i></li> </ul>

		<p>Transaction Publishers.</p> <ul style="list-style-type: none"> <li>• USEPA, N. (2000). <i>Constructed wetlands treatment of municipal wastewaters</i>. EPA/625/R-99/010. United States Environmental Protection Agency.</li> </ul>
11	8-Nov Thursday	<p><b>Lab: Tour of the Urbana &amp; Champaign Sanitary District Treatment Plant</b></p> <p><b>Assignment: 6d – Site Engineering Analysis – Stormwater and Wastewater Management</b></p> <p><b>Due: A6c – Site Engineering Analysis – Stormwater Runoff</b></p>
12	13-Nov Tuesday	<p><u>Lecture/Discussion:</u> Site Layout and Urban Design</p> <p><u>Readings:</u></p> <ul style="list-style-type: none"> <li>• Hitchcock Design Group. (2004). <i>Burnham Redevelopment Master Plan</i>.</li> <li>• Chapter 13: Residential Community Habitats in Berke, P., Godschalk, D. R., Kaiser, E. J., &amp; Rodriguez, D. (2006). <i>Urban land use planning</i>. University of Illinois Press.</li> </ul> <p>Supplemental:</p> <ul style="list-style-type: none"> <li>• Chapter 10: How to Make a Town in Duany, A., Plater-Zyberk, E., &amp; Speck, J. (2001). <i>Suburban nation: The rise of sprawl and the decline of the American dream</i>. Macmillan.</li> <li>• Perry, C. A. (1939). <i>Housing for the machine age</i>. New York, Russell Sage Foundation.</li> </ul>
12	15-Nov Thursday	<p><u>Lab:</u> Urban Design Paradigms</p> <p><u>Assignment:</u> 6e – Urban Design Paradigms</p> <p><b>Due: A6d – Site Engineering Analysis – Stormwater and Wastewater Management</b></p>
13	20-Nov Tuesday	Fall Break
13	22-Nov Thursday	Fall Break
14	27-Nov Tuesday	<p><u>Lecture/Discussion:</u> Site Engineering Analysis – Streets, Traffic, &amp; Grading</p> <p><u>Readings:</u></p> <ul style="list-style-type: none"> <li>• Anderson, L. T. (2000). <i>Planning the built environment</i>. Planners Press. <ul style="list-style-type: none"> <li>○ Chapter 8: Introduction to Transportation Planning</li> <li>○ Chapter 9: Street Capacity</li> <li>○ Chapter 11: Parking</li> </ul> </li> </ul>

		<p>Supplemental:</p> <ul style="list-style-type: none"> <li>• Chapter 10: Grading in Brooks, R. G. (1988). <i>Site planning: Environment, process, and development</i>. Prentice Hall.</li> <li>• Pages 40-64 in Listokin, D., &amp; Walker, C. (2012). <i>The subdivision and site plan handbook</i>. Transaction Publishers.</li> <li>• Georgia Department of Transportation. (2003). <i>GDOT Pedestrian and Streetscape Guide.pdf</i>. Retrieved from <a href="http://www.dot.ga.gov/PartnerSmart/DesignManuals/TrafficOps/GDOT%20Pedestrian%20and%20Streetscape%20Guide.pdf">http://www.dot.ga.gov/PartnerSmart/DesignManuals/TrafficOps/GDOT%20Pedestrian%20and%20Streetscape%20Guide.pdf</a></li> </ul>
14	29-Nov Thursday	<p><u>Lab</u>: Streets and Traffic  <u>Assignment</u>: 6f – Site Engineering Analysis – Street Layout, and Traffic  <b>Due: A6e – Urban Design Paradigms</b></p>
15	4-Dec Tuesday	<p><u>Lecture/Discussion</u>: Small Area Plans  <u>Readings</u>:</p> <ul style="list-style-type: none"> <li>• Chapter 14: Small Area Plans in Berke, P., Godschalk, D. R., Kaiser, E. J., &amp; Rodriguez, D. (2006). <i>Urban land use planning</i>. University of Illinois Press.</li> </ul>
15	6-Dec Thursday	<p><u>Lab</u>: Using SketchUp  <u>Assignment</u>: 6 – Site Plan Report  <b>Due: A6f – Site Engineering Analysis – Street Layout and Traffic</b></p>
16	11-Dec Tuesday	<p><u>Lecture/Discussion</u>: Course Wrap-up and Work Session  <b>Due: Draft Site Plan Map</b>  <b>Due December 15<sup>th</sup> (Friday): A6 – Site Plan Report</b></p>