

UP 503 | Physical Planning | Fall 2021

Instructor: Dustin Allred, dallred2@illinois.edu

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Time: M, W, 3:30pm – 4:50pm

Location: M – Everitt Laboratory, Room 2101, W – Nevada Building Computer Lab

Office Hours: Tues 1:00pm – 2:00pm by appointment

Prerequisite: Graduate standing in DURP or consent of the instructor

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 its 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

Course content will be covered in recorded lectures, discussions, labs, and work sessions. The course is organized as a **“flipped” classroom model**, with recorded lecture materials viewed in advance of in-class discussions. All class meetings will be in-person. Recorded lectures will be posted in advance and should be viewed prior to the Monday class session. In general, Monday sessions will be for activities, unstructured discussions and work sessions that build on the readings and recorded lectures. These sessions are also a chance to ask questions and get help on assignments. Wednesday sessions will be lab sessions. 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. The course brings together some preliminary work and key components all built around planning for physical development at both the regional and site scale. Key topics include:

- Preliminaries
 - Getting familiar with the built environment
 - Map interpretation and making skills
 - Software introductions
- Regional and site scale natural systems analysis
- Socio-economic context and the built environment
- 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 several smaller assignments and a larger report. The first half of the course focuses on suitability analysis as a framework for physical planning at the regional or metropolitan scale. The second half of the semester will focus on site scale planning with weekly assignment that build towards a site plan report. For both sections of the course, intermediate weekly assignments will build on each other; therefore it is crucial that you complete assignments on time, as this work will be useful for synthesizing your report.

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 using Adobe Creative Cloud applications and ArcGIS. You can access these applications in campus computing facilities, both in person and in some cases through remote servers – check the specific computing facility for details. You can also download these applications from the campus WebStore for free:

- Adobe Creative Cloud (includes Illustrator and InDesign): <https://webstore.illinois.edu/shop/product.aspx?zpid=4079>
- ESRI ArcGIS: <https://webstore.illinois.edu/shop/product.aspx?zpid=3873>

For more information: <https://answers.uillinois.edu/illinois/page.php?id=99109>

For remote access to campus computing facilities, here are some step-by-step login instructions:

1. Go to <https://go.illinois.edu/remotecomputerlabs>
2. Select the UIUC AnyWare tab and click the UIUC AnyWare link
3. Log in with uofi\<netID> and your netID password
4. On the left, select Desktops > All Desktops
5. Select a Lab

For more information: <https://answers.uillinois.edu/105054>

Additionally, the University of Illinois has contracted with LinkedIn to provide students with access to over 1,200 online courses provided by **LinkedIn Learning** (formerly lynda.com). These courses provide excellent background and additional depth in some of the software packages you will use to include Adobe Creative Suite and ArcGIS. These video based tutorials are taught by industry experts and available 24/7 for convenient, self-paced learning. Links to specific courses can be found on the course Compass site.

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 a report assignment. Class participation grades will reflect your command of the assigned readings and contribution to class discussions. Unless noted, attendance during 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) 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	10%
Suitability analysis assignments	30%
Site engineering and land use analysis assignments	30%
Site plan report	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.

Course Schedule

WEEKLY TOPICS & ACTIVITIES

WEEK 1: 23/25-Aug

Lecture/Discussion: Course Introduction

Readings:

- Nino, F. S. (2016, October 20). The New Urban Agenda: Key Commitments. Retrieved October 23, 2017, from <http://www.un.org/sustainabledevelopment/blog/2016/10/newurbanagenda/>
- Gabbatt, A. (2017, August 28). What makes Houston so vulnerable to serious floods? Retrieved October 23, 2017, from <http://www.theguardian.com/us-news/2017/aug/28/houston-harvey-risk-floods-analysis>

Lab: Lab Intro

Assignment: A1 – Understanding Space: Distance, Area and Density

WEEK 2: 30-Aug/1-Sep

Lecture/Discussion: Introduction to Physical Planning, Real Estate Markets, Land-Use and Reuse (**Note: No in-person session on Monday because of the holiday**)

Readings:

- Chapter 3: The City Image and Its Elements in Lynch, K. (1960). *The image of the city* (Vol. 11). MIT press.
- Chapter 1: Framing the Land Use Planning Process in Berke, P., Godschalk, D. R., Kaiser, E. J., & Rodriguez, D. (2006). *Urban land use planning*. University of Illinois Press.
- Miles, M. E., Berns, G. L., Eppli, M. J., & Weiss, M. A. (2007). *Real estate development: principles and process: Urban Land Institute*. Urban Land Institute.
 - Chapter 3: Developers and Their Partners
 - Chapter 13: Stage Three: The Feasibility Study
- Watch: LinkedIn Learning Illustrator 2021 Essential Training ([https://www.linkedin.com/learning-login/share?forceAccount=false&redirect=https%3A%2F%2Fwww.linkedin.com%2Flearning%2Fillustrator-2021-essential-training%3Ftrk%3Dshare_ent_url%26shareId%3Dc368a7aa-b2a1-444c-a3df-2173505bab09&account=43607124](https://www.linkedin.com/learning/login/share?forceAccount=false&redirect=https%3A%2F%2Fwww.linkedin.com%2Flearning%2Fillustrator-2021-essential-training%3Ftrk%3Dshare_ent_url%26shareId%3Dc368a7aa-b2a1-444c-a3df-2173505bab09&account=43607124))
 - Intro to lesson 6
 - Lesson 10 to 14
 - Lesson 17, 18, 22 & 23

Supplemental:

- Appendix C in Lynch, K. (1960). *The image of the city* (Vol. 11). MIT press.

Lab: Using Adobe Illustrator

Assignment: A2 – Diagramming with Adobe Illustrator

Due: A1 – Understanding Space: Distance, Area, and Density

WEEK 3: 6/8-Sep

Lecture/Discussion: Suitability Analysis

Reading:

- Steiner, F., McSherry, L., & Cohen, J. (2000). Land suitability analysis for the upper Gila River watershed. *Landscape and urban planning*, 50(4), 199-214.

Supplemental:

- Chapters 2: Maps in Anderson, L. T. (2000). *Planning the built Environment*. Planners Press.
- Landscape Architecture Notes

Lab: Graphic Representation and Making Planning Maps

Assignment: A3 – Making Maps with GIS and Illustrator

Due: A2 – Diagramming with Adobe Illustrator

WEEK 4: 13/15-Sep

Lecture/Discussion: Land Features as Constraints and Opportunities

Readings:

- Chapters 1: Landforms & 3: The Constraints of Slope on Land Development in Anderson, L. T. (2000). *Planning the built Environment*. Planners Press.
- Appendix A: Soils in Lynch, K., & Hack, G. (1984). *Site Planning*. The MIT Press.

Supplemental:

- Soil Conservation Service. (1982). *Soil Survey of Champaign County, Illinois*. United States Department of Agriculture.
- Natural Resources Conservation Service. (2003). *Soil Survey of Champaign County, Illinois*. United States Department of Agriculture.
- Chapters 1, 5 & 6 in Soil Survey Staff. (1999). *Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys*. United States Department of Agriculture.

Lab: ArcGIS, Illustrator, and Soils

Assignments: A4a – Slope and Soil Suitability

Due: A3 – Making Maps with GIS and Illustrator

Week 5: 20/22-Sep

Lecture/Discussion: Water as Resource and Threat

Readings:

- Chapter 6: Storm Drainage in Anderson, L. T. (2000). *Planning the built environment*. Planners Press.
- Landscape Architecture Notes: Delineating Watersheds
- Chapter 3: Floodplain Data and Mapping in Lynch, K., & Hack, G. (1984). *Site Planning*. The MIT Press.

Lab: Water Analysis

Assignment: A4b – Water Suitability

Due: A4a – Slope and Soil Suitability

WEEK 6: 27/29-Sep

Lecture/Discussion: Green Infrastructure

Readings:

- Benedict, M. A., & McMahon, E. T. (2001). Green infrastructure: smart conservation for the 21st century.
- Meerow, S., & Newell, J. P. (2017). Spatial planning for multifunctional green infrastructure: Growing resilience in Detroit. *Landscape and Urban Planning*, 159, 62-75.

Supplemental:

- Chicago Wilderness. (2004). *Chicago Wilderness Green Infrastructure Vision: Final Report*. Chicago Wilderness, Chicago.
- The Illinois Environmental Protection Agency. (2010). *The Illinois Green Infrastructure Study*. The Illinois Environmental Protection Agency, Springfield.
- ARIES :: ARTificial Intelligence for Ecosystem Services. (n.d.). Retrieved October 16, 2013, from <http://www.ariesonline.org/>
- Species Habitat Identification handout

Lab: Working with In-Design

Assignment: A4c – Green Infrastructure

Due: A4b – Water Suitability

WEEK 7: 4/6-Oct

Lecture/Discussion: Context, Surroundings and Physical Planning

Readings:

- Vinod Aranha, Kalpa Baghasingh, Anuttama Dasgupta, Hagisa Ikeda, So Yang Jung, Seongho Kim, ... Andrea Schultz. (2006). *Urban Analysis and Design for Energy Efficient Affordable Housing* (Capstone). University of Illinois at Urbana-Champaign.
- Banerjee, T., & Baer, W. C. (2013). *Beyond the neighborhood unit: Residential environments and public policy*. Springer Science & Business Media.

Lab: Working with Census Data

Assignments:

- A5 – Site Plan Report
- A5a – Socio-Economic Context and Social Suitability Analysis

Due: A4c – Composite Suitability Analysis

WEEK 8: 11/13-Oct

Work Sessions

WEEK 9: 18/20-Oct

Lecture/Discussion: Feasibility Analysis and Real Estate Pro Formas

Readings:

- Lemmon, W. (2013, December 23). Pro-Forma 101. Retrieved October 23, 2017, from <http://plannersweb.com/2013/12/proforma-101-getting-familiar-with-a-basic-tool-of-real-estate-analysis/>

Supplemental:

- Baily, M. N., Litan, R. E., & Johnson, M. S. (2008). The origins of the financial crisis.
- Krugman On The Financial Crisis And Public Spending. (n.d.). Retrieved October 23, 2017, from <http://www.npr.org/templates/story/story.php?storyId=95929699>

Lab: Using a Real Estate Pro Forma

Assignment: A5b – Real Estate Pro Forma Analysis

Due: A5a – Socio-Economic Context and Social Suitability Analysis

WEEK 10: 25/27-Oct

Lecture/Discussion: Site Engineering Analysis – Storm and Wastewater Management

Readings:

- Chapter 5: Wastewater Management in Anderson, L. T. (2000). *Planning the built environment*. Planners Press.
- County, P. G. (1999). Low-impact development design strategies: An integrated design approach. *Department of Environmental Resources, Programs and Planning Division, Prince George's County, Maryland*. (skim)

Supplemental:

- Clar, M. L., Barfield, B. J., & O'Connor, T. P. (2004). Stormwater best management practice design guide volume 2 vegetative biofilters. *Environmental Protection Agency*. [Http://Nepis.Epa.Gov/Adobe/PDF/901X0B00.PDF](http://Nepis.Epa.Gov/Adobe/PDF/901X0B00.PDF) (2/28/2010).
- Stormwater Runoff Calculations with a Spreadsheet in Gordon, S. I., & Anderson, R. F. (1989). *Microcomputer applications in city planning and management*. Greenwood Publishing Group Inc.

- Water Supply Systems and Sanitary Sewers in Listokin, D., & Walker, C. (2012). *The subdivision and site plan handbook*. Transaction Publishers.
- USEPA, N. (2000). *Constructed wetlands treatment of municipal wastewaters*. EPA/625/R-99/010. United States Environmental Protection Agency.

Lab: Site Engineering Analysis – Storm and Wastewater Management Assignment: A5c – Site Engineering Analysis – Stormwater and Wastewater Management

Due: A5b – Real Estate Pro Forma Analysis

WEEK 11: 1/3-Nov

Lecture/Discussion: Site Layout and Urban Design

Readings:

- Hitchcock Design Group. (2004). *Burnham Redevelopment Master Plan*.
- Chapter 13: Residential Community Habitats in Berke, P., Godschalk, D. R., Kaiser, E. J., & Rodriguez, D. (2006). *Urban land use planning*. University of Illinois Press.
- Litman, T. 2020, March 25. *Planning Healthy Communities—Beyond the Hype*. Planetizen - Urban Planning News, Jobs, and Education.

<https://www.planetizen.com/blogs/108789-planning-healthy-communities-beyond-hype>

Supplemental:

- Chapter 10: How to Make a Town in Duany, A., Plater-Zyberk, E., & Speck, J. (2001). *Suburban nation: The rise of sprawl and the decline of the American dream*. Macmillan.
- Metrics for Planning Healthy Communities (<https://www.planning.org/publications/document/9127204/>)
- Perry, C. A. (1939). *Housing for the machine age*. New York, Russell Sage Foundation.

Lab: Urban Design Paradigms

Assignment: A5d – Urban Design Paradigms

Due: A5c – Site Engineering Analysis – Stormwater and Wastewater Management

WEEK 12: 8/10-Nov

Work Sessions

WEEK 13: 15/17-Nov

Lecture/Discussion: Site Engineering Analysis – Streets, Traffic, & Grading

Readings:

- Anderson, L. T. (2000). *Planning the built environment*. Planners Press.
 - Chapter 8: Introduction to Transportation Planning

- Chapter 9: Street Capacity
- Chapter 11: Parking
- Haag, M. (2020, December 18). See What Happens When N.Y.C. Streets Are Full of People Instead of Cars. *The New York Times*. <https://nyti.ms/3am7jht>
- Watch: LinkedIn Learning InDesign 2021 Essential Training (https://www.linkedin.com/learning-login/share?account=43607124&forceAccount=false&redirect=https%3A%2F%2Fwww.linkedin.com%2Flearning%2Fdesign-2021-essential-training%3Ftrk%3Dshare_ent_url%26shareId%3D46%252B1Uy0jTOWsl%252Fbl2Z1DQ%253D%253D)
 - Intro to lesson 5
 - Lesson 9 & 13
 - Whatever else looks interesting!

Supplemental:

- Chapter 10: Grading in Brooks, R. G. (1988). *Site planning: Environment, process, and development*. Prentice Hall.
- Pages 40-64 in Listokin, D., & Walker, C. (2012). *The subdivision and site plan handbook*. Transaction Publishers.
- Georgia Department of Transportation. (2003). *GDOT Pedestrian and Streetscape Guide.pdf*. Retrieved from <http://www.dot.ga.gov/PartnerSmart/DesignManuals/TrafficOps/GDOT%20Pedestrian%20and%20Streetscape%20Guide.pdf>

Lab: Streets and Traffic

Assignment: A5e – Site Engineering Analysis – Street Layout, and Traffic

Due: A5d – Urban Design Paradigms

WEEK 14: 22/24 Nov

Fall Break

WEEK 15: 29-Nov & 1-Dec

Lecture/Discussion: Small Area Plans

Readings:

Chapter 14: Small Area Plans in Berke, P., Godschalk, D. R., Kaiser, E. J., & Rodriguez, D. (2006). *Urban land use planning*. University of Illinois Press.

Lab: Using SketchUp

Assignment: A5 – Site Plan Report

Due: A5e – Site Engineering Analysis – Street Layout and Traffic

WEEK 16: 6/8-Dec

Lecture/Discussion: Course Wrap-up and Work Session

Peer Review: Draft Site Plan Map

Due December 12th (Sunday): A5 – Site Plan Report