UP 434: Pedestrian and Bicycle Planning
Department of Urban and Regional Planning
University of Illinois at Urbana-Champaign
Spring 2021

Instructor: Dr. Lindsay Braun
lmbran@illinois.edu

Office Hours: Tuesdays and Thursdays by appointment; please sign up at:
https://calendly.com/lmbraun/meeting

Course Sessions: Tuesdays and Thursdays 2:00–3:20 PM

Credit Hours: 3.00

Course Description
Walking and cycling are becoming increasingly important in efforts to promote health, sustainability, and livability in cities across the globe. Planning for pedestrian and bicycle transportation is complex: these modes of travel are influenced by micro-scale environmental characteristics such as sidewalks, bike lanes, traffic safety, and urban design, and by macro-scale conditions such as regional land use patterns. Supporting pedestrian and bicycle transportation therefore requires collaboration across multiple disciplines, including urban planning, civil engineering, design, public health, and others. UP 434 introduces key concepts and methods that will help this collaboration to take place in support of healthier, more sustainable communities. The course is divided into four major sections:

- **Section I. Introduction to Pedestrian and Bicycle Planning.** The first section of the course describes the context of pedestrian and bicycle planning in the United States, including its history, recent trends, and key policies and decision makers. This section also introduces foundational concepts such as the determinants of travel behavior, the diverse benefits of walking and cycling, and the value of a comprehensive approach to pedestrian and bicycle planning.

- **Section II. Design and Planning: Fundamentals and Innovations.** The second section of the course introduces the fundamentals of multimodal facility design and plan creation/evaluation. This section covers both basic design approaches and recent innovations, with a consideration of implementation costs.

- **Section III: Data Collection and Analysis.** The third section of the course focuses on technical issues in pedestrian and bicycle planning, including data collection, safety evaluation, and methods for assessing facility performance and user demand.

- **Section IV: Plan Implementation and Emerging Issues.** The final section of the course addresses issues of plan implementation, including funding and institutionalization, advocacy and outreach, and social equity. This section also introduces describes international approaches to facility design and explores the impacts of autonomous vehicles on pedestrian and bicycle planning.

Course Format
This course will be taught mostly online, with the possibility of two in-person, outdoor sessions if weather and public health conditions allow. Dates for these tentative in-person sessions are indicated in the course schedule (page 6). In-person participation for these outdoor sessions will be optional, and alternative participation options
will be provided for students who need or prefer to remain online. All other course sessions and activities will be conducted remotely through a combination of Zoom and Compass.

Lectures will be held synchronously via Zoom during the scheduled class time. Synchronous participation is strongly encouraged if at all possible. I understand, however, that some of you may face barriers to synchronous participation (e.g., different time zone, family care obligations, limited internet bandwidth). To accommodate students who cannot participate during the scheduled class time—either on a regular basis or for particular sessions (e.g., due to illness)—recordings of all lectures will be posted on Compass.

The synchronous sessions of the course will be interactive and taught through a combination of lectures and in-class activities (e.g., labs, discussions, debates). Additional opportunities for learning and engagement will come through group assignments and the class discussion board (see below). Students are expected and encouraged to actively engage in these activities, contributing their questions, ideas, and experiences to a rich discussion and application of the course content.

**Course Objectives**

By the end of the semester, students in this course will be able to:

- Summarize the benefits and challenges of planning for walking and cycling
- Describe the roles of plans, policies, and infrastructure in supporting walking and cycling
- Understand the fundamentals of pedestrian and bicycle facility design, as well as emerging innovations
- Implement methods to assess pedestrian and bicycle use, safety, and facility performance
- Explain the processes of creating, implementing, and evaluating plans and programs
- Recognize both national and international perspectives on planning and facility design

**Course Requirements**

*Engagement.* Active engagement with the course materials, with the instructor, and with other students in the class is essential for success in UP 434. Given the unique and mostly-online format of this course, engagement can be demonstrated in multiple ways. Part of the engagement grade will come from the class discussion board, in which students will react to discussion questions and to each other’s comments at several selected points during the semester (specific instructions to follow separately). Additionally, students are expected to complete the assigned readings prior to class and to come to lectures and the discussion board prepared for thoughtful participation. Synchronous lectures will be interactive and students will be expected and encouraged to engage in active dialogue about key concepts and real-world examples. For students who must participate asynchronously, engagement can be demonstrated not only through participation in the discussion board, but through proactive communication with the instructor and group members.

*Assignments.* Students will complete four assignments designed to provide an enhanced understanding of planning, data analysis, and facility design. Three of these assignments will be one-time submissions (A1, A2, A3), while the final assignment will be a semester-long project (SP). These assignments are described in the table below; peer evaluations of individual contributions will form part of the grade for each group assignment.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Purpose</th>
<th>Format</th>
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</thead>
<tbody>
<tr>
<td>A1 Make the Case</td>
<td>Summarize the benefits of walking and cycling</td>
<td>Group (oral)</td>
</tr>
<tr>
<td>A2 Act Fast</td>
<td>Analyze and plan interim design strategies</td>
<td>Group (report)</td>
</tr>
<tr>
<td>A3 Dig in the Data</td>
<td>Analyze local pedestrian and/or bicycle data</td>
<td>Individual (report)</td>
</tr>
<tr>
<td>SP Design a Change</td>
<td>Design improvements to a campus intersection</td>
<td>Group (presentation + report)</td>
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</tbody>
</table>
Note: Graduate students will serve as group leaders for the semester-long project (SP), and the specific requirements for Assignment 3 (A3) will differ for undergraduate and graduate students.

\textit{Labs.} Students will complete four labs during the course of the semester. For students who are able to participate in the synchronous sessions, these labs will be completed in small breakout groups during class. For students who are unable to participate synchronously on lab days, work may be completed either individually or in self-arranged small groups outside of class. All students will upload their completed lab documents to Compass on the Sunday following the lab session for a basic check of completion and understanding.

\section*{Grading}

\textit{Weights.} Course requirements will be weighted in the final grade as follows:

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Weight (%)</th>
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</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>10</td>
</tr>
<tr>
<td>A1: Make the Case (group)</td>
<td>10</td>
</tr>
<tr>
<td>A2: Act Fast (group)</td>
<td>15</td>
</tr>
<tr>
<td>A3: Dig in the Data (individual)</td>
<td>20</td>
</tr>
<tr>
<td>SP: Design a Change (group)</td>
<td>35</td>
</tr>
<tr>
<td>Labs</td>
<td>10</td>
</tr>
</tbody>
</table>

\textit{Grading scale.} Numeric grades will be converted into letter grades using the scale outlined below. The course will not be graded on a curve, and there will be no rounding applied to numeric grades.

\begin{itemize}
  \item \textbf{A+:} 97.0–100.0
  \item \textbf{A:} 94.0–96.99
  \item \textbf{B+:} 87.0–89.99
  \item \textbf{B:} 84.0–86.99
  \item \textbf{C+:} 77.0–79.99
  \item \textbf{C:} 74.0–76.99
  \item \textbf{D+:} 67.0–69.99
  \item \textbf{D:} 64.0–66.99
  \item \textbf{F:} Less than 60.0
\end{itemize}

Detailed instructions for completing each assignment will be provided. Submitted assignments will be graded and returned promptly with detailed feedback. The general grading rubric is as follows:

\begin{itemize}
  \item An “A” assignment demonstrates original thought and synthesis of ideas and sophisticated, cogent analysis. It is clearly written and presented. Outstanding work.
  \item A “B” assignment includes above average analysis with appropriate evidence to support ideas. It is clearly written and presented. Good work.
  \item A “C” assignment shows a basic level of understanding, with analysis limited to obvious arguments. Writing is competent. Developing but adequate work.
  \item A “D” assignment misunderstands or misrepresents the material, or is so poorly written or presented as to obscure the analysis. Inadequate work.
\end{itemize}

\textit{Late Assignments.} Students are expected to turn in all deliverables (assignments, labs, etc.) on time. However, I understand—now more than ever—that challenges, unanticipated obligations, and illnesses will arise. If you are unable to meet a particular deadline, it is your responsibility to make prior arrangements with me regarding the deliverable. Otherwise, work submitted past the deadline will receive a five-percentage-point deduction, and work submitted later than five days past the deadline may not be considered for grading unless consent has been given by the instructor. Please communicate with me proactively about any challenges, illnesses, or emergencies that arise—I am here to work with you and help you do your best!
Readings
There are no required textbooks for this course; all readings will be posted on Compass. Readings for each session are listed at the conclusion of this syllabus.

Course Policies and Other Items/Resources

**Attendance.** “Attendance,” defined this semester as active engagement with the course material and activities, is necessary for adequate performance in this course. It is the instructor’s decision as to when a student’s “absences” (e.g., missed deadlines, non-participation in discussion board, lack of engagement), without proactive communication with the instructor, become excessive and should be reported. If in the opinion of an instructor the attendance of a student becomes so irregular that their scholarship is likely to be impaired, the instructor may submit an irregular attendance form to the Associate Dean of the student’s college. A copy is forwarded to the student, who should contact the instructor immediately to work out a solution. If irregular attendance continues without excuse, the instructor may request the student be withdrawn from the course. This request for withdrawal would result in a grade of E for the course. Extenuating circumstances will always be considered when supporting evidence is presented. See Rule 1-501 and Rule 1-502 in the Student Code for more information.

**Academic Accommodations.** This course will accommodate students with documented disabilities. To obtain disability-related academic adjustments and/or auxiliary aids, students should contact both the instructor and the Disability Resources and Educational Services (DRES) as soon as possible. You can contact DRES at 1207 S. Oak Street, Champaign, by phone at (217) 333-1970, or via email at disability@illinois.edu.

**Academic Integrity.** This course follows the guidelines set forth by the University Student Code. See [http://www.admin.uiuc.edu/policy/code/article_1/a1_1-401.html](http://www.admin.uiuc.edu/policy/code/article_1/a1_1-401.html) for specific guidelines, examples, and punishment associated with academic dishonesty. In written work, any ideas that are not your own must be properly cited. The consequences for plagiarism may include receiving no credit for an assignment or, at the discretion of the instructor, failure of the course.

**Counseling.** The University Counseling Center is committed to providing a range of services intended to help students develop improved coping skills in order to address emotional, interpersonal, and academic concerns. The Counseling Center provides individual, couples, and group counseling. All of these services are paid for through the health services fee. The Counseling Center offers primarily short term counseling, but they do also provide referrals to the community when students could benefit from longer term services. [https://counselingcenter.illinois.edu/](https://counselingcenter.illinois.edu/)

**Class Climate.** The Department of Urban and Regional Planning (DURP) is committed to maintaining a learning environment that is rooted in the goals and responsibilities of professional planners. By enrolling in a class offered by the Department of Urban and Regional Planning, students agree to be responsible for maintaining an atmosphere of mutual respect in all DURP activities, including lectures, discussions, labs, projects, and extracurricular programs. See Student Code Article 1-Student Rights and Responsibilities, Part 1. Student Rights: §1-102.

**Netiquette.** In any social interaction, certain rules of etiquette are expected and contribute to more enjoyable and productive communication. The following are tips for interacting online via email or discussion board messages, adapted from guidelines originally compiled by Chuq Von Rospach and Gene Spafford (1995):

- Remember that the person receiving your message is someone like you, deserving and appreciating courtesy and respect.
- Be brief; succinct, thoughtful messages have the greatest effect.
- Your messages reflect on you personally; take time to make sure that you are proud of their form and content.
• Use descriptive subject headings in your emails.
• Think about your audience and the relevance of your messages.
• Be careful when you use humor and sarcasm; absent the voice inflections and body language that aid face-to-face communication, internet messages are easy to misinterpret.
• When making follow-up comments, summarize the parts of the message to which you are responding.
• Avoid repeating what has already been said; needless repetition is ineffective communication.
• Cite appropriate references whenever using someone else’s ideas, thoughts, or words.
# Course Schedule

*(Subject to revision)*

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 26</td>
<td>Course Overview and Motivations</td>
<td></td>
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<tr>
<td></td>
<td>Jan 28</td>
<td>History, Institutions, and Key Trends</td>
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<tr>
<td>2</td>
<td>Feb 2</td>
<td>Pedestrian and Bicycle Travel Behavior</td>
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<td></td>
<td>Feb 4</td>
<td>Pedestrian and Bicycle Travel Behavior (continued)</td>
<td></td>
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<tr>
<td>3</td>
<td>Feb 9</td>
<td>Land Use, Connectivity, and Urban Design</td>
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<td></td>
<td>Feb 11</td>
<td>Making the Case: Benefits of Walking and Cycling</td>
<td>A1 due</td>
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<tr>
<td></td>
<td></td>
<td><strong>Section II. Design and Planning: Fundamentals and Innovations</strong></td>
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<tr>
<td>4</td>
<td>Feb 16</td>
<td>Pedestrian Design</td>
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<td></td>
<td>Feb 18</td>
<td>Pedestrian Design (continued)</td>
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<td>5</td>
<td>Feb 23</td>
<td>Bicycle Design</td>
<td></td>
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<td></td>
<td>Feb 25</td>
<td>Bicycle Design (continued)</td>
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<td>6</td>
<td>Mar 2</td>
<td>Multimodal Design</td>
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<td></td>
<td>Mar 4</td>
<td>Multimodal Design (continued)</td>
<td>Lab 1</td>
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<tr>
<td>7</td>
<td>Mar 9</td>
<td>Anatomy of a Pedestrian/Bicycle Master Plan</td>
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<td></td>
<td>Mar 11</td>
<td>Connections with Other Plans and Policies</td>
<td>Lab 2</td>
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<tr>
<td></td>
<td></td>
<td><strong>Section III. Data Collection and Analysis</strong></td>
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<tr>
<td>8</td>
<td>Mar 16</td>
<td>Data Sources and Collection Methods</td>
<td></td>
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<tr>
<td></td>
<td>Mar 18</td>
<td>Pedestrian and Bicycle Demand Estimation</td>
<td>A2 due</td>
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<tr>
<td>9</td>
<td>Mar 23</td>
<td>Pedestrian and Bicycle Safety</td>
<td></td>
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<td></td>
<td>Mar 25</td>
<td>SP Work Session <em>(benchmark: context + existing conditions)</em></td>
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<td>10</td>
<td>Mar 30</td>
<td>Facility Analysis Tools: Audits and Measures</td>
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<td></td>
<td>Apr 1</td>
<td>Facility Analysis Tools: Audits and Measures (continued)</td>
<td>Lab 3*</td>
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<td></td>
<td></td>
<td><strong>Section IV. Plan Implementation and Emerging Issues</strong></td>
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<tr>
<td>11</td>
<td>Apr 6</td>
<td>Funding and Institutionalization</td>
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<td></td>
<td>Apr 8</td>
<td>Advocacy, Outreach, and Social Equity</td>
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<td>12</td>
<td>Apr 13</td>
<td><strong>NO CLASS</strong> – University Break</td>
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<td></td>
<td>Apr 15</td>
<td>SP Work Session <em>(benchmark: design recommendations)</em></td>
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<tr>
<td>13</td>
<td>Apr 20</td>
<td>Autonomous Vehicles</td>
<td>A3 Due</td>
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<td></td>
<td>Apr 22</td>
<td>International Approaches</td>
<td></td>
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<tr>
<td>14</td>
<td>Apr 27</td>
<td>Addressing Common Misconceptions/Concerns</td>
<td>Lab 4*</td>
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<tr>
<td></td>
<td>Apr 29</td>
<td>SP Presentations</td>
<td></td>
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<tr>
<td>15</td>
<td>May 4</td>
<td>SP Presentations</td>
<td></td>
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<td></td>
<td>May 12</td>
<td>SP Report Due at 4:30 PM CT</td>
<td>SP due</td>
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</tbody>
</table>

* denotes sessions that may be held in person (outdoors), if weather and public health conditions allow
Readings

Course Overview and Motivations

History, Institutions, and Key Trends

Pedestrian and Bicycle Travel Behavior

Land Use, Connectivity, and Urban Design

Making the Case: Benefits of Walking and Cycling
- Group presentations; see Assignment 1 prompt for suggested readings for your group’s specific benefit.

Pedestrian Design
Bicycle Design


Multimodal Design


Anatomy of a Pedestrian/Bicycle Master Plan


Connections with Other Plans and Policies

- Additional readings assigned as part of in-class activity/lab

Data Sources and Collection Methods

Pedestrian and Bicycle Demand Estimation


Pedestrian and Bicycle Safety


Facility Analysis Tools


Funding and Institutionalization


Advocacy, Outreach, and Social Equity


Autonomous Vehicles


International Approaches


Addressing Common Misconceptions/Concerns

- No readings; review Lab 4 document before class