UP 443 Scenarios, Plans, & Future Cities

SYLLABUS

Class Meetings: Tuesdays & Thursdays, 11:00 AM – 12:20 PM
Location: 223 Temple Buell Hall

Instructor: Arnab Chakraborty PhD, AICP
Professor of Urban and Regional Planning
arnab@illinois.edu, 217-244-8728
Office Hours: Fridays@11:00 AM or by appointment (TBH M230 or Online)

PURPOSE AND GOALS

This course covers theories, tools, and applications of scenario planning. Scenario planning is a set of techniques for analyzing the complexities and uncertainties common in planning decisions. It can be used to think about multiple facets of a problem simultaneously and for addressing the uncertain future in light of the limited cognitive and computational capacity of individuals and organizations. Urban planners and policymakers are employing scenario approaches through both technical and engagement tools, and in a range of situations from climate action planning to managing regional transportation and shrinking communities. Understanding how planners can employ scenario analysis to further shaping just and resilient future communities is a fundamental goal of this course.

The demand for knowledge and skills in this area reflects the limited ability of traditional planning techniques such as forecasting and comprehensive plans to address the need for current and future residents. The use of scenario analysis in many planning initiatives in the United States and around the world also recognizes the increasingly uncertain and complex environment that planners work in. Myriad tools, collectively referred to as Planning Support Systems, are now available that support technical analyses of future impacts of present-day decisions and help engage a variety of stakeholders. Practitioners and researchers need the ability to compare and select the right tools and apply them in ways that best serve the needs of the community.

This course is designed for students interested in making our cities ready for future uncertainties. This includes students from urban planning, sustainable design, business, civil and environmental engineering, agricultural and consumer economics, architecture, and landscape architecture.

Course objectives: This course will –

i) expose students to key principles of scenario analysis, and how they apply to urban planning and related fields
ii) advance students’ ability to think about the future more systematically, and consider how planning decisions interact with future uncertainties,
iii) explore tools that can simulate alternative futures and engage diverse stakeholders, and
iv) help students understand how scenario analysis can advance the broader goals of development plans and policies, as well as help devise strategies in specific situations.

Scenario planning is a broad field, and this course does not promise to be a comprehensive exploration of all aspects of scenario planning. Rather, the focus will be to stimulate thought and provide you with intellectual tools to make you a more knowledgeable and creative professional and/or researcher.

1 Syllabus is subject to change.
About the Instructor: Arnab Chakraborty PhD AICP is a Professor of Urban and Regional Planning at the University of Illinois at Urbana-Champaign. Chakraborty's research concerns critical questions surrounding governance of land, housing, and infrastructure, and has been funded by NSF, FHWA, and the Lincoln Institute of Land Policy, among others. His work on the impact of restrictive zoning and planning responses has received national attention, and his work on scenario techniques has been credited as the ‘backbone’ of FHWA’s Next Generation Scenario Planning Guidebook. In 2022, Chakraborty was a visiting fellow at the Lincoln Institute. Chakraborty serves as an associate editor of JAPA and as a site visitor for PAB.

Readings: A detailed list of readings assignments to be completed prior to each session is included later in the syllabus. Readings include journal articles, book chapters, professional reports, and actual plan or policy documents. PDF of all readings will be either provided through Canvas or are linked in this syllabus. Some files may require VPN when off campus (https://techservices.illinois.edu/services/virtual-private-networking-vpn/details). Several readings are from the following book which you may purchase, if you like.


COURSE ORGANIZATION

This course is organized in four parts, each culminating in a deliverable. These are described below. Additional guidance for some deliverables may be provided at a later date.

1. **Background: Planning and the Future** (Week 1-4): This section will situate the course in context by highlighting traditional approaches to dealing with the future in urban planning. The readings and activities will discuss the strengths of these approaches, as well as their limitations especially in light on increasing complexity and uncertainties in planning practice. This section will conclude with students submitting a Background Memo summarizing key lessons from the full set of readings.

2. **Scenario Analysis – Principles and Applications** (Week 5-8): This section will provide students a detailed theoretical and conceptual grounding in scenario analysis and planning. Readings will cover basic principles, different scales and approaches employed in scenario practice, and how to measure their impact and efficacy. The session will highlight important pioneering and contemporary scenario planning efforts around the United States and abroad. Case reviews will focus on comprehensive regional scale efforts and provide a broad sense of situations where scenario planning is a good idea. This section will culminate with a memo where students will summarize their main takeaways, interests, and questions about scenario planning.

3. **Planning Support Systems Deep Dive** (Week 10-12): The section will provide hands-on training on select scenario planning tools. Students will use datasets and software applications as well as qualitative engagement and role play mechanisms to build skills and experience. The last session will be dedicated to a sharing outputs and lessons learned.

4. **Scenario Planning for Emerging Challenges** (Week 13-16): In the final section, the class will read and discuss applications of scenario planning in a range of emerging situations from adapting to sea-level rise and extreme heat events, to preparing for autonomous cars. Students will concurrently work on the final deliverable - a proposal to conduct a scenario planning activity in a community and topic of their choice.
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<td>1-17</td>
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<td>Community Trends for Planners*</td>
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<td>Review Session and Course wrap-up Final submission</td>
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**FORMAT AND EXPECTATIONS**

UP443 is designed as a Seminar. This means that we are going to learn and discuss the material together. The instructor will provide occasional brief lectures to provide background information only. Students are expected to do most of the talking. The instructor's main role is to provide some context for the topic and then to intervene when necessary to prompt discussion, to referee, or to bring the discussion back to the theme of the day. Expect to read an average of approximately 75 pages per week. You will be expected to complete all the assigned readings, turn in your written reactions in advance, where applicable, and participate in discussions and activities. Many – though not all – Tuesdays will focus on readings and discussions and Thursdays will focus on activities. The class expects strong work from all students; Graduate students will be expected to have a deeper understanding of the literature and deliver relatively higher quality work. Student contributions will consist of the following:
Reading reactions (20% of final grade for graduate students; 25% of final grade for undergraduate students): Approximately half of the class sessions have assigned readings for which submission of reading reactions are expected on Discussion Board. These sessions are marked with an asterisk (*) in the Schedule Overview table. Prior to each session, you are expected to submit written reactions to that day’s readings. These are expected to be a very brief synthesis (about 100-150 words) of your reactions to the overall set of readings for the session (i.e., do not submit summaries of readings or write reactions to every individual piece of reading). Ideas for what you might address include: what you like/dislike about the readings; identify some aspect of the readings that made an impression on you (a new fact, enlightening observation, a new twist to an old idea, writing style, etc.); or note something you did not understand. You may also include one or two questions you would like to discuss in the class. For full credit, please submit your reactions by 10:00 am on the day of class session on designated Canvas Discussion Board link.

Participation in class discussions (25% of the final grade for graduate students; 20% of the final grade for undergraduate students): One of the most important parts of this course is your participation. You need to complete the assigned readings and come prepared to offer your opinions, critiques, confusion, excitement, or further questions. To begin the discussion, the instructor may randomly call on one or two students to share their thoughts on each reading. This initial “ice-breaker” should then stimulate open discussion. Some sessions will involve other interactive activities or guest speakers. Your participation grade will be based on your demonstration of knowledge, relevant contributions, and ability to engage others. Please note that attendance and engagement in class is critical for every individual student’s learning, as well as for the overall success of the class. Your attendance will be expected and tracked. While attendance itself will not lead to a high participation grade, more than two unexcused absences will have a proportional negative impact on your grade.

Memos (20% of the final grade for all students): Two brief memos are due at designated points during the semester. The memos will be an opportunity for you to integrate some of the themes covered during that portion of the course and to explore a topic in greater depth. You should be able to draw significantly on your reading reactions for these, including reusing your own prior writing. A goal would be to synthesize relevant ideas and to extend them to address questions that may be of interest to you. You are encouraged to refer to additional articles, plans, and studies in your memo. Each memo is expected to be about 1,000 words plus references and any graphics. Memos will be graded out of 50 using the following rubric: (1) Coverage of relevant topics; (2) Strength of research and analysis; (3) Clear and concise writing; (4) Organization, formatting, and citations; (5) Quality of conclusions and overall completeness of the task.

Final Project (25% of the final grade for all students): Students will also complete a final project. The expectations will include an early proposal (5%), an in-class presentation (10%), and a final submission (10%). A prompt will be provided shortly after the Spring Break.

Current events/discussion co-lead (10% of the final grade for all students): Each student will be assigned one class session to serve as discussion co-lead with the instructor and possibly one other student. Interests in specific sessions will be solicited in week 1. Discussion co-leading is intended to be a low effort and engaging experience. The assigned student will be responsible for submitting a current news item related to the session’s topic. “Current” is defined as something preferably published within the last two years. For example, you may find a news article that provides an update regarding a policy under discussion or that presents a controversy or difficult issue in a community with respect to the session’s topic(s). The article/link(s) should be shared through the designated Canvas Discussion Board (“Current Events”) at least one day in advance. Typically, the instructor will invite the student during the last-third portion of the class session to co-facilitate a discussion on the shared article and topic.
READING ASSIGNMENTS

1. **January 17: Course Overview**

   Introductions, syllabus review, and Canvas orientation.

   **Background: Planning and the Future**

2. **January 19: Community Trends for Planners**


3. **January 24: Planning and the Future**


4. **January 26: [No Class Meeting] Alternate presentation OR Asynchronous Activity**

   There will be no class meeting for this session. Instead, please watch this *National Geographic video* on future cities focused on Singapore and complete one of the following two activities and submit an overarching reflection on Canvas. Your reflection may include key insights, implications for your professional interests, or a discussion of issues that are relevant for your own community. Please also include any questions you may wish to discuss with the class in a future session.

   **Alternate presentation:** APA’s 2023 Trend Report will be released and presented over Zoom on January 25 at 1 PM. If you are available, please register for the free presentation session [here](#), attend the session, and provide your reflections as discussed above.

   **Asynchronous Activity:** For those unable to attend the APA Zoom session, please review this [article](#) and as many of the embedded links you can, and provide your reflections as discussed above.

5. **January 31: Traditional Practices for Managing Change**


There will be no class meeting for this session. Instead, please review at least two planning documents of your choice that address the future explicitly. Ask yourself whether these plans follow the principles outlined in Hoch (2000), are sufficiently visionary per Isserman (1985), and/or preparing communities for ongoing and possible changes as outlined Hurtado et al. (2022)? Following are links to local plans but please feel free to look at plans for any community you are interested in.

- Urbana comprehensive plan: [https://www.urbanailinois.us/sites/default/files/attachments/Comprehensive_Plan.pdf](https://www.urbanailinois.us/sites/default/files/attachments/Comprehensive_Plan.pdf)
- Champaign comprehensive plan: [https://cityofchampaign.sharepoint.com/_layouts/15/guestaccess.aspx?docid=0d78e24b6c94e8abe2641ea383ff6ceauthkey=Aa2YCpx1P3GL12rpRZhfWZo](https://cityofchampaign.sharepoint.com/_layouts/15/guestaccess.aspx?docid=0d78e24b6c94e8abe2641ea383ff6ceauthkey=Aa2YCpx1P3GL12rpRZhfWZo)
- Champaign Economic Development strategic plan: [https://cityofchampaign.sharepoint.com/_layouts/15/guestaccess.aspx?docid=009d02e19b7e94fceb5de9a19a992688d&authkey=AZge6brAjZWYPFhaqJLMQ_M](https://cityofchampaign.sharepoint.com/_layouts/15/guestaccess.aspx?docid=009d02e19b7e94fceb5de9a19a992688d&authkey=AZge6brAjZWYPFhaqJLMQ_M)

7. **February 7: Challenges: Complexity, Equity, and Uncertainty**


Suggested Reading: “What does a just city look like, and how can we start creating them?” Check out the responses from 22 cities on five continents from 26 urban designers, artists, activists, mayors, and others. The responses are collected and curated by Harvard University’s Design’s Just Cities Lab.

8. **February 9: Review and Work Session**

This session will include an overarching discussion of topics covered in this module, provide an opportunity to ask questions about the upcoming memo, and allow some time for in-class independent work on the memo. No new readings are assigned. You are encouraged to share questions about the whole module in advance through the discussion board.

***Memo due 2/10 at 5pm***

9. **February 14: Integrative Discussion**

Students will be invited to share some highlights from their individual memos. No formal preparation or presentations are expected. The goal is to hear about and learn from different interests and approaches.

10. **February 16: Scenario Analysis: Concepts and Theory**


11. **February 21: Scenario Approaches: Process**


For an example of scenario analysis in long range regional planning and its comparison to other regions, see Mid-America Regional Council Scenario Planning Workshop Report, [https://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/peer_exchange/mid-america/index.cfm](https://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/peer_exchange/mid-america/index.cfm)

12. **February 23: Scenario Planning Examples Across Regional Scales: Review and Work Session**

This session will ask students to organize in groups based on domain interest. Each group will identify and review scenario planning efforts in their respective area and summarize key insights with the class. The following links provide some information to get started but groups will be welcome to source their own cases, including international examples.

- For a more technical model, see SCAG Scenario Planning Model: [https://scag.ca.gov/scag-scenario-planning-model](https://scag.ca.gov/scag-scenario-planning-model)
- Review the American Planning Association’s KnowledgeBase on Scenario Planning here: [https://www.planning.org/knowledgebase/scenarioplanning/](https://www.planning.org/knowledgebase/scenarioplanning/). Specific cases are available from “Scenario Planning Case Examples” [link](https://www.planning.org/knowledgebase/scenarioplanning/) that may relate to the scale and topic of your interest.
- The Consortium for Scenario Planning maintains a [resource page](https://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/publications/next_gen/) that may be of interest.

13. **February 28: Planning Tools and Models Overview**

Goodspeed, R. Scenario Planning for Cities and Regions, Managing and Envisioning Uncertain Futures; Chapter 5 Digital Scenario Tools (pp. 88-114); Chapter 6: Effective Scenario Practice (pp. 115m-131) Lincoln Institute of Land Policy Press, Cambridge MA (2021)

[Please note: this section is intended to provide an overview of tools within the broader landscape of scenario planning practices. The next module will provide a deeper dive into one or two tools].

Suggested reading [for a historical perspective that is still relevant]: Douglass B. Lee Jr. (1973) Requiem for Large-Scale Models, Journal of the American Institute of Planners, 39:3, 163-178, DOI: 10.1080/01944367308977851
14. **March 2: Connecting Processes and Models**


This will be an interactive session which will ask students to organize in groups and go through a “mapping” exercise of previously reviewed scenario planning efforts using the typology developed in the Chakraborty & McMillan reading. Groups will also offer critiques and suggest improvements to reviewed processes.

15. **March 7: Evaluating Regional Efforts and Equity**


16. **March 9: Work Session**

This session will include an overarching discussion of topics covered in this module, provide an opportunity to ask questions about the upcoming memo, and allow some time for in-class independent work on the memo. No new readings are assigned. You are encouraged to share questions about the whole module in advance through the discussion board.

*** Memo Due Friday 3/10 at 5pm***

17. **March 14: NO CLASS – Spring Break**

18. **March 16: NO CLASS – Spring Break**

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**Planning Support Systems: Deep Dive**

This module will provide hands on experience with at least one scenario planning tool. The exact tool and the context in which it will be applied will be discuss a few sessions in advance. Students who are interested to get a head start can review tools commonly used in scenario planning from the list below.

- CommunityViz: [https://communityviz.city-explained.com](https://communityviz.city-explained.com)
- Urban Footprint: [https://urbanfootprint.com](https://urbanfootprint.com)
- Urbansim: [https://urbansim.com](https://urbansim.com)

Readings/Activity: TBD

20. March 23: PSS: Indicators and Assessments

Readings/Activity: TBD


Readings/Activity: TBD

22. March 30: Summary/Presentations

23. April 4: NO CLASS (National Planning Conference)

Scenario Planning for Emerging Challenges

24. April 6: Applications: Climate Change

Stone, Madeleine. 2021 “5 possible climate futures—from the optimistic to the strange”, National Geographic


25. April 11: Applications: Disaster Management


26. April 13: Applications: Smart Cities and Technology

Smart City Digital Twins, PAS Quick Notes#89, (2019) A Publication of the American Planning Association


Applied Information (2018) How Renew Atlanta’s Smart City Corridor is a Model for What’s Next

** Final Project proposal due 4/14 at 5pm **
27. **April 18: Connecting Lessons Across Systems**


28. **April 20: Work Session**

29. **April 25: Student Presentations**

Students will share their work on the final project. *ALL student presentations will be due on Canvas by class time on 4/25.

30. **April 27: Student Presentations**

Remaining students will share their work on the final project.

31. **May 2: Review Session and Course Wrap up**

This session will involve an integrative review and discussion on topics covered throughout the semester and offer students an opportunity to discuss questions about the upcoming deliverable. Students will also be able to provide feedback on the course and the instructor. No readings are assigned, but comments or questions about anything related to scenario planning are welcome in advance through the discussion board or during the session.

*** Final Submission due Monday 5/8 at 5pm ***
COURSE POLICIES AND RESOURCES

Deadlines and grades: Please note the deadlines for all submissions. I recommend adding these to your calendar. Late submission will incur an initial 10% penalty and additional 10% penalty for every 24 hours thereafter. Late submission penalty may be waived in certain situations, such as for sudden illness or family crisis. Please let the instructor know about any possible delays as early as possible. Final grades will be assigned as follows:

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Counselling Center: Resources are available on campus if you find yourself in need of mental or emotional support. The Counseling Center ([https://counselingcenter.illinois.edu/](https://counselingcenter.illinois.edu/)) 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.

Disability Services: This course will accommodate students with documented disabilities. Please refer to the Disability Resource and Education Services website ([https://www.disability.illinois.edu](https://www.disability.illinois.edu)) for more information and inform the instructor of any requests at the beginning of the semester.

Diversity: The Department of Urban and Regional Planning (DURP) is committed to creating an environment of inclusion and opportunity that is rooted in the very goals and responsibilities of practicing planners. Conduct that interferes with the rights of another or creates an atmosphere of intimidation or disrespect is inconsistent with the environment of learning and cooperation that the program requires. By enrolling a course in the Department of Urban and Regional Planning, students agree to be responsible for maintaining a respectful environment in all DURP activities, including lectures, discussions, labs, projects, and extracurricular programs. We will be governed by the University Student Code. Please see the Student Code Article 1—Student Rights and Responsibilities for further details.

Academic Integrity: Please be aware of the university guidelines regarding academic integrity, which can be found under Article 1, Part 4 of the student code ([https://studentcode.illinois.edu](https://studentcode.illinois.edu)). Academic dishonesty includes such things as cheating, inappropriate use of university equipment/material, fabrication of information, plagiarism (presenting someone else’s work from any source as your own such as copying someone else’s post), and so on. This includes using automated content generated by AI platforms such as ChatGPT. All forms of academic dishonesty will be reported to the student’s home department and the College of Fine and Applied Arts.

Irregular Attendance: Class attendance is expected of all students at the University of Illinois; however instructors must reasonably accommodate a student’s religious beliefs, observances, and practices in regard to class attendance and work requirements if the student informs his or her instructor of the conflict within one week after being informed of the attendance or work requirements. It is the
instructor’s decision as to when a student’s absences become excessive and should be reported. If in the opinion of an instructor the attendance of a student becomes so irregular that his or her 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.

Software: Software used in this course are accessible to students through DURP Remote server: https://static.ics.illinois.edu/remote-list/. Software are also available from AnyWare, a virtual desktop environment allowing student to access licensed software whether remote, on campus, or in class. Some software are available for free download for students (Adobe Cloud, Office 365).

Emergencies (Run > Hide > Fight): Emergencies can happen anywhere and at any time, so it’s important that we take a minute to prepare for a situation in which our safety could depend on our ability to react quickly. Take a moment to learn the different ways to leave this building. If there’s ever a fire alarm or something like that, you’ll know how to get out and you’ll be able to help others get out. Next, figure out the best place to go in case of severe weather – we’ll need to go to a low-level in the middle of the building, away from windows. And finally, if there’s ever someone trying to hurt us, our best option is to run out of the building. If we cannot do that safely, we’ll want to hide somewhere we can’t be seen, and we’ll have to lock or barricade the door if possible and be as quiet as we can. We will not leave that safe area until we get an Illini-Alert confirming that it’s safe to do so. If we can’t run or hide, we’ll fight back with whatever we can get our hands on. If you want to better prepare yourself for any of these situations, visit police.illinois.edu/safe. Remember you can sign up for emergency text messages at emergency.illinois.edu.

COVID-19 POLICY Following University policy, all students are required to engage in appropriate behavior to protect the health and safety of the community. Students are also required to follow the campus COVID-19 protocols. See here for up-to-date information: https://covid19.illinois.edu

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