UPP 502: Planning Skills - Computers, Methods and Communication
Fall 2021

Tuesday 12:30 - 3:15PM

Art and Exhibition Hall (AEH) 2201

Credit Hours: 4 / CRN: 23431

Instructor: Michael Iversen

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SUMMARY

Introduction to methods for collecting, analyzing and presenting socio-economic and spatial data, with a focus on computer-based methods and an emphasis on effective communication of ideas and findings. Particular skills are categorized by methods (conceptualization, quantitative reasoning, data collection and analysis, descriptive and inferential statistics, economic analysis, population projections, systems analysis, land use analysis), communication (written reports, oral presentations, visualization) and computer programs (MS Excel, Trimble SketchUp, NetLogo).

Prerequisite: Admission to Master's degree program in Urban Planning and Policy, or consent of the instructor.

UPP 502 is a prerequisite to UPP 505/506, in which students will apply skills to making plans.

OBJECTIVES

By the end of the course, students should be able to do the following:

► Primary

  ▪ Be able to use tools to describe the economic, environmental and social attributes and conditions of a community.

  ▪ Demonstrate proficiency in writing, speaking, enumerating, visualizing and computing skills.

  ▪ Be able to demonstrate knowledge on a range of secondary data sources.

  ▪ Be able to develop and present a community profile, in terms of scoping, inventory, and assessment.

  ▪ Apply quantitative reasoning and appropriate analysis techniques to problem identification, detailing alternatives and selecting among alternatives.

► Secondary

  ▪ Be able to provide planning services combining writing, speaking, enumerating, visualizing and computing skills, so as to result in relevant and effective deliverables.

  ▪ Be able to frame research questions and possess basic skills to conduct research.

  ▪ Be able to understand a community as a complex, dynamical system in terms of the flux and cyclic processes of energy, materials, information, and costs that interact on an urban scale.

CLASS FORMAT

The course format (venue) is lecture / discussion (classroom – AEH 2201) and lecture / assignment, with the intention to maintain an open and reflective learning environment. During class sessions, students are encouraged to participate and contribute questions, clarifications, and comments.

UPP 502 will be using Blackboard (Bb), a Web-based integrated teaching and learning environment, as a virtual classroom for the purpose of relieving some of the space and time constraints of our assigned classroom and schedule. Bb will be used for posting reading assignments, homework assignments, lectures, threaded discussions and course management.

Course Outline and Schedule subject to change throughout the semester (current as of 12.09.21).

EVALUATION AND GRADING

As a student you are responsible for all material covered in class and contained in the assigned readings. All assigned readings to be completed prior to the scheduled topic. All homework assignments to be submitted on the due date at the start of class (12:30pm). All assignments must be student's own work.

Attendance and Participation*: Attendance* (10 points) will be based on attending all class sessions on time and for their full length. Students are responsible for signing an *Attendance Sheet* which will be provided and collected at the start of class by the instructor.

- Absences: Unexcused absences will reduce a student's grade, and more importantly, will affect the ability to master the material in this course and successfully complete assignments. An absence will be considered unexcused unless a student has communicated their situation with the instructor and obtained approval in advance, or provided evidence of a valid medical or personal / family circumstance. Each unexcused absence is a 2.0 point deduction.

- Tardiness: Students are to arrive at class on time (12:30pm) to allow sufficient time for lecture and discussion, and that class is not disrupted by late arrivals. Late arriving students are responsible for obtaining any previously issued information and announcements. Each late arrival is a 0.5 – 2.0 point. deduction.

Participation (10 points) will be based on a student's contribution of comments, questions, and discussion in class. Meaningful participation and interaction enhances the learning environment for all students.

Quizzes*:* Four non-scheduled quizzes will be given at the start of class without advance notice. Quizzes will be based on the assigned weekly readings for that particular class. Each quiz is worth 5 points. The lowest of the five Quiz scores omitted from Final Grade.

Grading*:* Course grading is based on the following point structure;

Attendance and Participation	20 points	as per each class session.
Homework Assignments (HW1 - 10)	80 points	refer to Course Schedule and Bb.
Field Assignments (FA1 - 2)	20 points	refer to Course Schedule and Bb.
Quizzes (Q1-4)	20 points	non-scheduled.
Final Project: Community Profile:	60 points	refer to Course Schedule and Bb.
Total	200 points	

Grading scale is as follows;

- **A** 90 - 100% (180.0 - 200 points)
- **B** 80 - 89% (160.0 - 179.9 points)
- **C** 70 - 79% (140.0 - 159.9 points)
- **D** 60 - 69% (120.0 - 139.9 points)
- **F** < 60% (< 119.9 points)

- *Late Assignment Submittals:* All assignments are to be submitted to instructor no later than by beginning of class (12:30pm) on due date. Late submittals will incur an initial 10% point deduct, and an additional 1% deduct for each day thereafter.

- *Assignment Extension Option (One-Time/One-Week):* for one-time only, students are allowed to extend the due date by one week for any Homework or Field Assignment of their choosing. This does not apply to *Final Project: Community Profile*. Students are to inform the instructor of extensions via email prior to the initial due date of the assignment.

- *Rounding*: Points will be rounded to one decimal place. If the second decimal place value is 5 or more, the value in the first decimal place will be increased by 1. Example: 179.85 points will be rounded to 179.9 (grade = B). Example: 179.95 points will be rounded to 180.0 points (grade = A).

ADDITIONAL POLICIES: Refer to the *UIC Graduate Catalog 2020-22* and *UIC Student Disciplinary Policy* for conduct and academic policies. Students with disabilities are to refer to *Disability Services Statement*.

REQUIRED TEXTBOOKS

Hemalata, Dandekar, C. (2019). *The Planner's Use of Information, 3rd ed.* New York: Routledge.

For more than 35 years, planners have depended on *The Planner's Use of Information* to help collect, organize, analyze and communicate complex information. Edited again by Hemalata C. Dandekar, this completely revised and updated third edition includes chapters by leading experts in data collection, analysis, presentation, and management. It is an invaluable day-to-day resource for practicing planners and an ideal classroom text for courses in planning skills, analytical methods and communication.
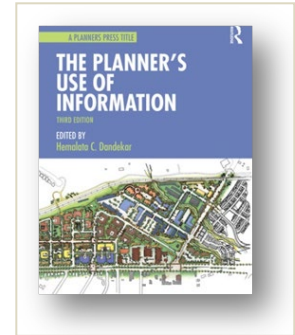
Rowntree, Derek. (2004). *Statistics Without Tears: A Primer for Non-Mathematicians*. Boston: Pearson/A & B.

An ideal introduction to statistics in any field, this text uses words and diagrams, rather than formulas and equations, to help students from all subject areas understand what statistics is, and how to think statistically. The author uses a question-and-answer presentation style to help students learn on their own. *Statistics without tears* focuses on the ideas behind statistics only; students are not required to perform any calculations.
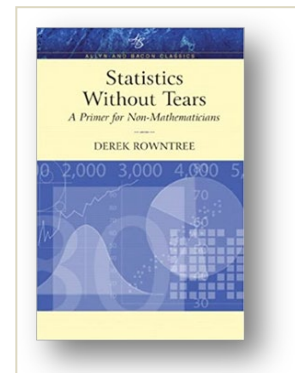
Meadows, Donella, H. (2015). *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing Company.

This essential primer brings systems thinking out of the realm of computers and equations and into the tangible world, showing readers how to develop the systems-thinking skills that thought leaders across the globe consider critical for 21st-century life. Readers will learn the conceptual tools and methods of systems thinking, the first step toward finding proactive and effective solutions for urban systems.
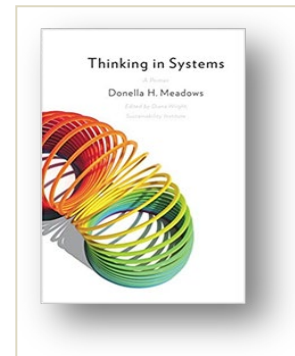
Miller, Jane E. (2015). *The Chicago Guide to Writing About Numbers, 2nd ed.* Chicago: University of Chicago Press.

Students who work with numbers are often stymied by how to write about them. *The Chicago Guide to Writing about Numbers* helps bridge the gap between good quantitative analysis and good expository writing. This book shows writers how to think about numbers during the writing process, and discusses the fundamental tools for presenting numbers; in the form of tables, charts, examples, and analogies.
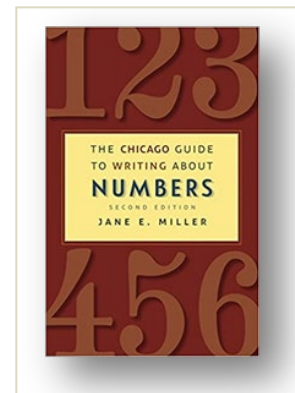
Course Outline and Schedule

Week	Date	Lecture No. / Topic	Readings Due Before Class	Assignments Due in Class
1.	August 24	Lecture 1 **Introduction** ▪ course overview ▪ planning process ▪ planning skills ▪ Community Profile	**Review**: UPP 502 Blackboard (Bb), syllabus, and textbooks. **Daniels, et al**: Ch. 6 (Bb). **Steiner and Butler**: Plan Making (pp. 5) (Bb).	none
2.	August 31	Lecture 2 **Data Analysis I: Descriptive** ▪ data analysis ▪ statistics ▪ data graphics	**Dandekar**: Ch. 4 ~~(pp.125-141, 2ⁿᵈ ed.)~~ (117-133, 3ʳᵈ ed.) **Miller**: Ch. 1, 6, 7. **Tutorial**: *Excel Essential Training (Office 365)*[*1]	**HW 1** Community to Profile Selection *(5 points)*
3.	September 7	Lecture 3 **Data Analysis II: Collection** ▪ research design and evaluation ▪ primary data sources ▪ secondary data sources	**Dandekar**: Introduction, Ch. 1, 3. **Miller**: Ch. 2. **Review**: U.S. Census Bureau web site.	**HW 2** Descriptive Analysis with Spreadsheets *(5 points)*
4.	September 14	Lecture 4 **Data Analysis III: Projection** ▪ population analysis ▪ cohort survival ▪ trendline extrapolation	**Dandekar**: Ch. 4 (pp.141-149). **Daniels, et al.**: Ch. 7 (Bb). **Miller:** Ch. 3. **Steiner and Butler**: pp. 299-302.	**HW 3** Secondary Data Analysis with U.S. Census *(5 points)*
5.	September 21	Lecture 5 **Systems Analysis I** ▪ complex, dynamical urban systems ▪ carrying capacity ▪ ecological footprint analysis		

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[1] Excel tutorial: Access LinkedInLearning at http://go.uic.edu/LinkedInLearning. Search for "Excel Essential Training (Office 365, with Dennis Taylor)" and select this course. Review the following sections, a necessary, depending on your current familiarity:

1) Getting Started with Excel, 2) Entering Data, 3) Formulas and Functions, 4) Formatting, 5) Adjusting Worksheet Layout and Data, 7) Charts, and 10) Data Management Features.

Week	Date	Lecture No. / Topic	Readings Due Before Class	Assignments Due in Class
6.	September 28	Lecture 6 **Systems Analysis II** ▪ modeling and simulation ▪ agent-based modeling: NetLogo	**Dandekar**: Ch. 4 (pp.135-142). **Meadows**: Chap. 1, Chap. 4	**HW 4** Population Projection *(10 points)* ---------------------------- **HW 5** Ecological Footprint Analysis *(10 points)*
7.	October 5	Lecture 7 **Climate Change Analysis** ▪ climate change science ▪ GHG emissions inventory ▪ climate change simulation	**NetLogo User Manual**: specified at class. **Miller**: Ch. 4.	**HW 6** ABM with *NetLogo* *(10 points)*
8.	October 12	Lecture 8 **Land Use Analysis** ▪ mapping ▪ plans ▪ regulations ▪ SWOT analysis	**Dandekar**: Ch. 8. **Daniels, et al.**: Ch. 13 (Bb). **Steiner and Butler**: pp. 320-334, 364-367. (Bb)	**HW 7** Climate Change Simulation with *En-ROADS* (5 points)
9.	October 19	Lecture 9 **Municipal Budget Analysis** ▪ fiscal impact analysis ▪ capital budget ▪ operating budget	**Miller**: Ch. 5. **Steiner and Butler**: pp. 314-316, 401-405. **Bunnell**: 1997 (Bb).	**HW 8** Land Use Analysis *(10 points)*
10.	October 26	Lecture 10 **Economic Analysis** ▪ Economic Base Theory ▪ Economic Base Analysis ▪ Shift-Share Analysis	**Dandekar**: Ch. 3 (pp.87-91). **Steiner and Butler**: Part 5 (pp. 303-304) (Bb). **Daniels, et al.**: Ch. 8 (Bb). **Patton and Sawicki**: Ch.5 (pp. 207-219) (Bb). **Review**: U.S. 2017 Economic Census.[2]	**FA 1** Planning Skills Interview *(10 points)*

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[2] U.S. 2017 Economic Census: Familiarize yourself with 2012 and 2017 Industry Series data, Geographic Area Series data, NAICS codes, reliability of data, and other relevant information.

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Week	Date	Lecture No. / Topic	Readings Due Before Class	Assignments Due in Class
11.	November 2	Lecture 11 **Visualization I: Trimble SketchUp**	**Steiner and Butler**: pp. 336-344. **SketchUp Tutorials** (provided in class on 10.26) **Miller**: Ch. 8.	**HW 9** Economic Analysis *(10 points)*
12.	November 9	Lecture 12 **Visualization II: Advanced Visualization and Virtual Reality**	**Review:** Electronic Visualization Laboratory / UIC web site. *UrbanRama: Navigating Cities in Virtual Reality* (Chen, S. et al, 2021) (Bb)	**HW 10** 3D Modeling with *Trimble SketchUp* *(10 points)*
13.	November 16	Lecture 13 **Communication and Presentation** ▪ speaking ▪ written ▪ graphic	**Dandekar**: ▪ Ch. 9 (all) ▪ Ch. 10 (pp. 298-306) ▪ Ch. 11 (pp. 340-346)	**FA 2** Planning Event Summary *(10 points)*
14.	November 23	Lecture 14 **Planning Skills & Praxis** ▪ guest discussants	guest discussant backgrounds (Bb)	none
15.	November 30	**Student Presentations of Community Profiles**	none	**Final Project Due: Community Profile** *(50 points)* ------------------------ **Final Project: Presentation** *(10 points)*
16.	December 7**	**Student Presentations of Community Profiles**	none	**Final Project: Presentation** *(10 points)*

** Finals Week class time slot is 12:30 – 3:15, and location is AEH 2232.

PRIMARY ASSIGNED READINGS (from required course texts and Blackboard)

Bettencourt, L. M. A. (2021). *Introduction to urban science: Evidence and theory of cities as complex systems*. Cambridge, MA: The MIT Press.

Chopra, A., & Town, L. (2007). *Introduction to Google SketchUp*. Hoboken, NJ: Wiley & Sons.

Dandekar, H. C. (2019). *The Planner's use of information, 3nd edition*. Chicago, IL: Planners Press, American Planning Association.

Daniels, T. L., Keller, J. W., Lapping, M. B., Daniels, K., & Segedy, J. (2007). *The Small town planning handbook*. Chicago, IL: Planners Press, American Planning Association.

Meadows, D. H. (2015). *Thinking in systems: A Primer*. White River Junction, VT: Chelsea Green Publishing Company.

Meadows, D. H., Randers, J. & Meadows, D. L. (2004). *Limits to growth: The 30-year update*. White River Junction, VT: Chelsea Green Publishing Company.

Miller, J. E. (2015). *The Chicago guide to writing about numbers*. Chicago, IL: University of Chicago Press.

Patton, C. V., & Sawicki, D. S. (1993). *Basic methods of policy analysis and planning*. Englewood Cliffs, N.J.: Prentice Hall.

Railsback, Steven F., & Grimm, V. (2011). *Agent-based and individual-based modeling: A Practical introduction*. Princeton, NJ: Princeton University Press.

Rowntree, D. (2004). *Statistics without tears: A Primer for non-mathematicians*. Boston: Pearson/A & B.

Steiner, F. R., & Butler, K.S. (2007). *Planning and urban design standards* [student edition]. Hoboken, NJ: John Wiley & Sons, Inc.

Subak, S. (2019). *The Five-ton life: Carbon, America, and the culture that my save us*. Lincoln, NE: University of Nebraska Press.

Wackernagel, M., & Rees, W. E. (2007). *Our ecological footprint: Reducing human impact on the earth*. Gabriola Island, B.C: New Society Publishers.