



COURSE SUBJECT, NUMBER AND TITLE

Civ Engr 571 URBAN TRANSPORTATION PLANNING

CREDITS

3 credits

CANVAS COURSE URL

<https://canvas.wisc.edu/courses/260090>

COURSE DESIGNATIONS AND ATTRIBUTES

This course carries the graduate course attribute.

MEETING TIME AND LOCATION

T.R. 9:30 AM - 10:45 AM, ENGR HALL 3444

INSTRUCTIONAL MODALITY

In-person

SPECIFY HOW CREDIT HOURS ARE MET BY THE COURSE

Three hours (three 50-minute) of classroom or direct faculty/instructor instruction and a five hours of out of class student work each week over 15 weeks of the semester.

INSTRUCTORS AND TEACHING ASSISTANTS

a. Instructor Title and Name

Bin Ran, Professor

Yang Cheng, Scientist

b. Instructor Availability

Thursday 11AM-12PM.

c. Instructor Email/Preferred Contact

Bin Ran, Room 1212 Engr. Hall, (608) 262-0052, bran@engr.wisc.edu

Yang Cheng, Room B239A Engr. Hall, (608) 890-2226, cheng8@wisc.edu

d. Teaching Assistant

Jing Zhu, Sicheng Fu

e. TA Office Hours

Tuesday, 2-4 PM

f. TA Email/Preferred Contact

JING ZHU jzhu254@wisc.edu; SICHENG FU sfu42@wisc.edu.

OFFICIAL COURSE DESCRIPTION

This course covers the principles of planning, evaluation, selection, adoption, financing, and implementation of alternative urban transportation systems; formulation of community goals and objectives, inventory of existing conditions; transportation modeling—trip generation, distribution, modal choice, assignment, technological characteristics and operation of modern transit and other movement systems.

REQUISITES

CEE370 Transportation Engineering or consent of instructor

COURSE WEBSITE, LEARNING MANAGEMENT SYSTEM and INSTRUCTIONAL TOOLS

Through the university's learning management system, Canvas, and Blackboard Collaborate. It is strongly suggested that students explore and become familiar not only with Canvas' site navigation but with content and resources available for the course.

COURSE LEARNING OUTCOMES

Throughout the semester, students will the principles of planning, evaluation, selection, adoption, financing, and implementation of alternative urban transportation systems; formulation of community goals and objectives, inventory of existing conditions; transportation modeling—trip generation, distribution, modal choice, assignment, technological characteristics and operation of modern transit and other movement systems.

This class also provides for students the opportunities to explore new areas, topics, and models for urban transportation planning through the course project.

GRADING

Exam I	- 15%
Exam II	- 15%
Exam III	- 30%
Term Paper	- 30%
Homework	- 10% (All assignments should be typed)
	100%

DISCUSSION SESSIONS

WEEK	Date	TOPIC	READINGS
1	9/8	Course Overview; UTP: Definition & Basic Principles	H Ch 1/M&M Ch 1
2	9/13	System Approach to Problem Solving; Urban Travel Demand Modeling Process – 4 Steps	H 1.3/M&M 5.4/HD 3.1,3.2
	9/15	Characteristics of Regional Transportation Planning Urban Transportation Problems	M&M Ch 2, 3.0- 3.4

3	9/20	Review of Transportation Planning Software	M&M 4.1.2, Appendix B, Handout
	9/22	Trends, Responses & Strategies; Characteristics of Urban Travel	M&M 3.3, 4.0-4.2/HD 101-118
4	9/27	Review of Statistics Concepts; Sampling Distribution of Mean	Handout
	9/29	Central Limit Theorem; Point Estimation	Handout
5	10/4	Sample Size; Interval Estimation	Handout
	10/6	Transportation Facility Characteristics; Capacity of Transport System	M&M 5.0-5.2
6	10/11	Inventories; Surveys; Sampling	D 13.1-13.5
	10/13	Trip Generation & Attraction: Factors, Models	H 2.1, 2.2/M&M 5.4.1/HD 28-37
7	10/18	Trip Generation-Regression	Handout
	10/20	Exam I	
8	10/25	Regression – Least Squares, Gauss-Markov Conditions, Measure of Fit	Handout
	10/27	Steps of Regression Analysis; Trip Generation - Cross Classification	Handout
9	11/1	Trip Distribution-Overview & Gravity Model	M&M 5.4.2/H 4.0,4.2,4.3
	11/3	Gravity Model – Singly Constrained and Doubly Constrained	H 4.3.2-4.3.4 pp. 89-99
10	11/8	Growth Factor Method; Fratar Models	H 4.1
	11/10	Model Choice Models	H 3.1 pp.54-61/M&M 5.4.3
11	11/15	Behavioral Choice Models; Logit Model - Issues and Applications	H 3.2/M&M 5.5.1/HD 50-55; M&M 5.5.2
	11/17	Traffic Assignment: Diversion Curve; Shortest Path	R Sheffi 5.3
12	11/22	Exam II	
	11/24	Thanksgiving Recess	
13	11/29	Travel Time Function; User Equilibrium	R Sheffi 1.1-1.4
	12/1	Incremental Traffic Assignment; Capacity Restraint Traffic Assignment; User Equilibrium Traffic Assignment	H 5.1-5.4 /M&M 5.4.4/HD 63-67
14	12/6	Systems Evaluation - Economic Evaluation; Concepts; Benefits & Costs; MOEs; Project Evaluation; Rating & Ranking; Multi-objective Assessment; Overview	M&M 8.0-8.6.1/ H 10.1-10.2.3; H 10.6,10.7/M&M 8.6.2,8.7
	12/8	Student Presentations	
15	12/13	Student Presentations	
	12/15	Study Day – No Class	
16	TBD	EXAM III [normally would be a Final Exam]	[scheduled during exam week]

LABORATORY SESSIONS

REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS

1. Meyer, Michael D. and Miller, Eric J., Urban Transportation Planning: A Decision-Oriented Approach, 2nd Edition, McGraw Hill, 2001, HE305 M495 2001.
2. B.G. Hutchinson, Principles of Urban Transport Systems Planning, McGraw-Hill, 1974. (Chapters 1-5, 8, 10) HE305 H87
3. Harvey, G. and Deakin, E., Manual of Regional Transportation Modeling Practice, National Association of Regional Councils, Washington, D.C., July 1993. (Chapter 3) TD883.2 H37 1993

HOMEWORK & OTHER ASSIGNMENTS

Four sets of homework.

EXAMS, QUIZZES, PAPERS & OTHER MAJOR GRADED WORK

- There are three exams, scheduled in October, November, and December, respectively. Open-book.
- A term paper is required, and the topic for the term paper should be related to one area of urban transportation planning. The sample topics can be as follows (but not limited to):
 - Summary of traditional travel survey methods
 - Summary of novel travel survey methods
 - GPS/Cell phone based O-D data collection methods
 - Topics on ATIS (Advanced Traveler Information System) or ATMS (Advanced Traffic Management System)
 - Topics on urban planning issues

The term paper is due on Thursday, Dec. 9 in class. All papers must include appropriate references and footnotes. All material and ideas that are not your own must be identified by a footnote. The format should be kept consistent with TRB paper format: <http://www.trb.org/Guidelines/Authors.pdf>

Every team needs to turn in a report in addition to the presentation. The project is graded based on the report (50%) and presentation (50%).

Exam Proctoring

Instructors have the authority to decide whether to proctor their tests, quizzes or other course assessments, and whether the courses is offered in-person or remotely. Failure to use the proctoring service assigned will result in zero on exams.

Digital Exam Proctoring

[Honorlock](#) is the campus-supported proctoring tool. See [FAQ's](#) about Honorlock. Honorlock will be used to proctor your exams this semester. Honorlock is an online proctoring service that allows you to take your exam from the comfort of your home or selected location on campus. You DO NOT need to create an account, download software or schedule an appointment in

advance. Honorlock is available 24/7, and all that is needed is a computer, a working webcam/microphone, your ID, and a stable internet connection. All data is collected and stored in compliance with [FERPA](#).

To get started, you will need Google Chrome and download the Honorlock Chrome Extension. UW-Madison recommends creating a new Chrome profile to use during assessments with Honorlock. This profile creates a fresh version of Google Chrome, free of all existing data, and, when finished, students can simply switch back to the default profile. This is an added security measure but no data is tracked or stored outside of FERPA related use during the exam period.

When you are ready to complete your assessment, log into Canvas, go to your course, and click on your exam. Clicking "Launch Proctoring" will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will be recording your exam session through your webcam, microphone, and recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device.

If you are taking a proctored exam in a setting that requires a mask, Honorlock may ask you to briefly slide the mask down for identity verification prior to the start of your exam.

Additional Honorlock information:

- If an instructor wants ID verification, a student ID is acceptable and is only used to set up the exam the first time. It is only used to verify the test-taker. We do not collect any other personal identifying information.
- There is no invasion of privacy if other voices/images are seen during the exam. A flag may appear for the instructor to view but it is not voice tracking or infringing on privacy. All data is stored and reviewed using FERPA compliant servers.
- Facial recognition is FERPA compliant and ensures that the test-taker is the same during the full assessment period.
- Honorlock does not scan home networks or monitor data from any device on the network other than the one used for testing. Secondary devices, such as phones, can be detected, but this is not accomplished by network snooping. Other users connected to the same network during a student's Honorlock session can process personal or confidential information concurrently without fear of eavesdropping on secondary device activities. In addition, the application does not have the capability of intercepting network communications from devices connected to the same network during the student's session.
- Honorlock does not access the test-taker's network, nor does it monitor or access any secondary devices that are on the test-taker's network. Honorlock monitors

the internet connection to ensure and document the quality of the connection during the test-taking experience. This helps with addressing situations where the test-takers internet connection becomes unstable during the test-taking experience.

- Students using their smartphones to search online resources for test questions should note that Honorlock utilizes a manual technology to detect academic integrity issues. Specifically, Honorlock hosts websites with seeded test questions that, when assessed during an examination session, sets off an action, such as a sound alert, on the phone. This action is picked up during the student's session and may alert instructors to review for academic integrity issues. Honorlock does not initiate any technologies to eavesdrop on the student's smartphone activity either during or after an examination session.
- The Chrome Web browser extension allows Honorlock to interact with the student and the exam content during the exam. During the exam, the following data may be captured, analyzed, and stored, depending on the options enabled by the instructor:
 - webcam video, including audio, and screen recording
 - student information presented by Canvas, such as student name, course number, and exam name;
 - webpages visited during the exam session;
 - specific behavior that may indicate academic dishonesty, such as attempts to copy/paste into search engines.
- Because Honorlock requires the use of a Google Chrome browser, some international students may need to use a VPN while taking their exam. UW-Madison recommends and provides a VPN for all staff and students with a netID, which can be downloaded as described in this [Knowledgebase document](#). Students are not required to use the UW-Madison VPN, but it is considered more reliable than others.
- During the exam, Honorlock's AI analyzes and flags certain behaviors. Then, an instructor with legitimate educational interest can review the exam session's flags to determine if any academic integrity violations occurred.
- Honorlock's AI monitors students during the exam and automatically generates a flag if unusual activity is detected. Once an exam session is complete, instructors are able to review flags to determine if there was an academic integrity violation. Please note that flags are not confirmations of cheating or misconduct, only that unusual activity was detected. All flags are tagged as either low, medium, or high risk and require manual instructor review.
- Prior to your exam, it is best to alert your instructor if you do not have a private, quiet space to take your exam. Knowing this in advance is helpful, because it provides your instructor with context about your testing environment and allows you to concentrate on your assessment instead of fearing you'll be accused of cheating.

- We recommend that test-takers find a quiet room to take an exam where others are not present. But we also understand that may be impossible in our new reality and videos are reviewed with this understanding and following FERPA best practices for review, storage and compliance to protect the rights of our students.
- No data is transferred to a third party or stored by a third party. UW-Madison is the sole owner of all data collected during an exam period.
- This link provides additional information on Honorlock's [Student Privacy Statement](#).

Honorlock support is available 24/7/365. If you encounter any issues, you may contact them through live chat on the support page or within the exam itself. Some guides you should review are [Getting Started for Students](#), [Honorlock MSRs](#), [Student FAQ](#), [Honorlock Knowledge Base](#), and [How to Use Honorlock](#).

Privacy of Student Information and Digital Proctoring Statement

The privacy and security of faculty, staff and students' personal information is a top priority for UW-Madison. The university carefully reviews and vets all campus-supported teaching and learning tools, including proctoring tools and takes necessary steps to ensure that tool providers prioritize proper handling of sensitive data in alignment with FERPA, industry standards and best practices. Under the [Family Educational Rights and Privacy Act](#) (FERPA – which protects the privacy of student education records), student consent is not required for the university to share with Honorlock those student education records necessary for carrying out the proctoring service. 34 CFR 99.31(a)(1)(i)(B). FERPA specifically allows universities to treat vendors as school officials and to share student education records with them where they perform services for the university and are subject to FERPA requirements governing the use and redisclosure of personally identifiable information from education records. Honorlock is FERPA compliant and is bound by the terms of its agreement with the university to comply with FERPA's restrictions on the use of student education records.

PRIVACY OF STUDENT RECORDS and the USAGE of AUDIO RECORDED LECTURES

See information about [privacy of student records and the usage of audio-recorded lectures](#).

Usage of Audio Recorded Lectures Statement

Lecture materials and recordings for *[insert class name]* are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability

requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

OTHER COURSE INFORMATION

REFERENCES:

1. Dickey, John W., et al., Metropolitan Transportation Planning, McGraw-Hill, 1983. HE305 M47 1983 (Second Edition)
2. Kanafani, Adib, Transportation Demand Analysis, HE152.5 K36 1983.
3. "Effective Citizen Participation in Transportation Planning," Vols. I and II, USDOT, FHWA, 1976. TD 2 2:C 49/ 4 V. 1 & 2
4. "Transportation System Management and Federal-Aid Highway Funds for Transportation Improvements", TRB Special Report, Washington, D.C., 1979, TD 2.2: T 68/4/979.
5. Trip Generation Analysis, USDOT, FHWA, Urban Planning Div., USGPO, August, 1975. TD 2.2:T73
6. Calibrating and Testing a Gravity Model for Any Size Urban Area, USDOT FHWA, Oct., 1963. HE333 U5(1963) & C 37.6/2: G 78/965 (1965)
7. Spear, Bruce D., Applications of New Travel Demand Forecasting Techniques to Transportation Planning, USDOT, FHWA, Urban Planning Div., USGPO, March, 1977. TD2.2:T69/2
8. Traffic Assignment, USDOT, FHWA, USGPO, August, 1973. TD2.8:T67/2/973
9. Sossiau, A.B., Hassam, A.B., Carter, M.M., and Wickstrom, G.V., "Quick-Response Urban Travel Estimation Techniques and Transferable Parameters--User's Guide," NCHRP Report 187, Transportation Research Board, Washington, D.C., 1978. S N21 C88 no.187.
10. Sheffi, Yosef, Urban Transportation Networks, Prentice-Hall, 1985. HE 305 S54 1985.

*** All references will be placed on 2-hour reserve in the Engineering Library.

HOW TO SUCCEED IN THIS COURSE

Things that can be done include but not limited to: attending the lectures, completing assignments on time, studying for exams, and contact TA or instructors if you have any questions.

STUDENTS' RULES, [RIGHTS & RESPONSIBILITIES](#)

During the global COVID-10 pandemic, we must prioritize our collective health and safety to keep ourselves, our campus, and our community safe. As a university community, we must work

together to prevent the spread of the virus and to promote the collective health and welfare of our campus and surrounding community. More details about these protocols are available at the [Instructional Continuity website](#) and are aligned with broader campus health and safety protocols, outlined on the university's [Smart Restart website](#).

UW-Madison [Badger Pledge](#)

UW-Madison [Face Covering Guidelines](#)

While on campus all employees and students are required to [wear appropriate and properly fitting](#) face coverings while present in any campus building unless working alone in a laboratory or office space.

Face Coverings During In-person Instruction Statement (COVID-19)

Individuals are expected to wear a face covering while inside any university building (and outdoors when physical distancing is not possible). Face coverings must be [worn correctly](#) (i.e., covering both your mouth and nose) and be properly fitting [face coverings](#) if you are attending class in person. If any student is unable to wear a face-covering, an accommodation may be provided due to disability, medical condition, or other legitimate reason.

Students with disabilities or medical conditions who are unable to wear a face covering should contact the [McBurney Disability Resource Center](#) or their Access Consultant if they are already affiliated. Students requesting an accommodation unrelated to disability or medical condition, should contact the Dean of Students Office.

Students who choose not to wear a face covering may not attend in-person classes, unless they are approved for an accommodation or exemption. All other students not wearing a face covering will be asked to put one on or leave the classroom. Students who refuse to wear face coverings appropriately or adhere to other stated requirements will be reported to the [Office of Student Conduct and Community Standards](#) and will not be allowed to return to the classroom until they agree to comply with the face covering policy. An instructor may cancel or suspend a course in-person meeting if a person is in the classroom without an approved face covering in position over their nose and mouth and refuses to immediately comply.

Quarantine or Isolation Due to COVID-19

Student should continually monitor themselves for COVID-19 [symptoms](#) and get [tested](#) for the virus if they have symptoms or have been in close contact with someone with COVID-19. Student should reach out to instructors as soon as possible if they become ill

or need to isolate or quarantine, in order to make alternate plans for how to proceed with the course. Students are strongly encouraged to communicate with their instructor concerning their illness and the anticipated extent of their absence from the course (either in-person or remote). The instructor will work with the student to provide alternative ways to complete the course work. Every effort will be made to accommodate the academic progress of students who may become ill or be asked to isolate or quarantine.

Course Evaluations

Students will be provided with an opportunity to evaluate this course and your learning experience. Student participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

Digital Course Evaluation (AEFIS)

UW-Madison now uses an online course evaluation survey tool, [AEFIS](#). In most instances, you will receive an official email two weeks prior to the end of the semester when your course evaluation is available. You will receive a link to log into the course evaluation with your NetID where you can complete the evaluation and submit it, anonymously. Your participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

ACADEMIC CALENDAR & RELIGIOUS OBSERVANCES

- See: <https://secfac.wisc.edu/academic-calendar/#religious-observances>

ACADEMIC INTEGRITY STATEMENT

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin-Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct which may result in disciplinary action. Examples of disciplinary action include, but is not limited to, failure on the assignment/course, written reprimand, disciplinary probation, suspension, or expulsion.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES STATEMENT

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with

disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (See: [McBurney Disability Resource Center](#))

DIVERSITY & INCLUSION STATEMENT

[Diversity](#) is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.