Welcome to URBAN 571/IPM 503

About the Course

This course is focused on how to pay for infrastructure—infrastructure finance—including the considerations of planning, budgeting, and public—private partnerships. The first two weeks provide a context for the course by introducing the relationship between infrastructure finance, urban form, and sustainability. In these early weeks, the basic process of creating a capital improvement program—a plan for investing in infrastructure—is also introduced.

The course then divides into two parts, beginning with local government finance as practiced in the United States. For two weeks, we study the economic theories associated with conditions of local finance. Theories are the basis for examining the conceptual economic framework for finance in relation to planning processes, the governmental setting, budgeting approaches, and taxes. We review arguments for and examples of accountability and transparency in budgeting, and devote considerable effort toward understanding equity and distributional issues.

Capital programming is the subject of the last part of the course. We study the assessment and prioritization of infrastructure investments in changing economic climates, the forms of finance available for infrastructure, collective decision-making, and the implications of alternative forms of project delivery, such as public–private partnerships. Forms of finance include pay-as-you-go, capital reserves, infrastructure banks, special assessments, exactions, impact fees, grants, general obligation bonds, revenue bonds, capital leases, tax increment financing, and privatization.

Students engage these concepts throughout the quarter with readings, videos, discussion forums, and quizzes. Each student is asked to apply these concepts and mechanisms in the development of a hypothetical capital improvement program—a product developed in stages during the quarter. The course concludes with a final exam, based on concepts reinforced in quizzes and discussion forums.

Course Preview

- 10 lessons
- CIP project with 4 written deliverables
- 5 quizzes, based on lessons
- Participation in 5 discussion forums
- Final exam

Learning Objectives

By the end of the course, students will be able to

• describe the roles of planning and local finance in infrastructure development;

- explain the relationship between infrastructure finance and contemporary urban problems, such as urban sprawl and climate change;
- explain the local finance process, including key concepts, relationships, processes, theories, and approaches in local finance;
- develop methods to increase accountability and transparency in budgeting and infrastructure finance;
- address equity and distributional issues in infrastructure planning and finance;
- analyze local budgets and fiscal issues through concepts and theories, and gain experience in capital improvement programming and budgeting; and
- identify and apply the rules of thumb (standards and equations) employed in infrastructure planning and local finance.

The Online Environment

Your online course offers several advantages to the traditional classroom, including the comprehensive <u>UW Online Dashboard</u>, the ability to communicate electronically with students and with your instructor, and links to a rich array of <u>UW Library Services</u>.

Communicating with Your Instructor and Student Peers

An online forum enables you to communicate with other currently enrolled students and with your instructor. You can use the forum to post questions, share resources, or engage in conversations about topical issues.

You can use e-mail to ask the instructor a question or, preferably, post your question on the discussion forum. The instructor will reply to all discussion forum questions on the forum, and to email questions via e-mail.

UW Library Services

As an online student, you have access to a wealth of Web resources compiled to provide fast, easy access to information that supports your online learning experience. Organized by subject, UW Library Services links you to sites with help for writing and research, study skills, language learning, and library reference materials. All links have been assessed for credibility and reliability, and they are regularly monitored to ensure their usability.

About this Course

Course Prerequisites

This course is limited to students enrolled in the MIPM program. Three core courses precede this course. Students are highly recommended to have completed the other core courses prior to registration. Students seeking registration who have not completed the other core courses will require a waiver from the instructor prior to registration.

Required Materials

The required texts for this course are:

- J. R. Bartle, W. B. Hildreth, and J. Marlowe. 2012. *Management Policies in Local Government Finance*. (6th ed.). Washington, DC: ICMA.
- Justin Marlowe, William C. Rivenbark, and A. John Vogt. 2009. 2nd ed. *Capital Budgeting and Finance: A Guide for Local Governments*. Washington, DC: ICMA.
- David Dowall and Jan Whittington. 2003. *Making Room for the Future: Rebuilding California's Infrastructure*. San Francisco: Public Policy Institute of California. <u>http://www.ppic.org/main/publication.asp?i=399</u>

Articles

Required articles are available in the lesson areas.

Technology Requirements and Skills

In addition to the technology requirements and skills noted in the Online Student Handbook, for this course you will need Adobe Reader.

Course Organization

This course is organized into 10 lessons. Each includes readings from online sources or the required texts, and many have recorded video presentations by the instructor and/or other experts. Some lessons also include an assignment such as a quiz, an online discussion forum, or work toward the major course project.

About the Lessons

Lesson 1: Introduction to Infrastructure Finance

This lesson introduces the context for the finance of infrastructure by local government. Readings introduce local government finance, capital improvement programming, and the competition between funds for infrastructure improvements, maintenance, and government operations. Each student is assigned a hypothetical city for which they will develop a capital improvement program.

Lesson 2: Sustainability and Vulnerability

Examples of capital improvement programs and their fiscal policies are presented. Readings and discussion explore the relationship between capital improvement programming and sustainability and urban form, with emphasis on neutrality and smart growth as potential outcomes of budgeting and finance decisions. The first quiz is administered.

Lesson 3: Budgeting and Economic Theory, Part I: Neoclassical and Public Goods

A two-part series focusing on economics begins with the introduction of the theories of neoclassical economics and public goods. Concepts such as marginal analysis, excludability, non-rivalrous consumption, future value, Pareto optimality, and externalities are introduced. Common pool resources, which exhibit the tragedy of the commons, and theories of public choice, in which consumers "vote with their feet," are introduced and related to infrastructure and local government budgeting.

Lesson 4: Budgeting and Economic Theory, Part II: Club Goods and Transaction Costs

A two-part series on economics concludes with the introduction of the theories of club goods and transaction costs, both of which describe infrastructure systems and their delivery as products and services. Local government budgeting is explored in depth, with concepts and methods of accountability and transparency presented. The second quiz is administered.

Lesson 5: Taxes, Equity, and Financing Options

In this week, lessons turn to the specifics of revenue sources for local government (in general) and financing options for infrastructure (in particular). Property taxes, sales, and sales taxes are studied in depth. Financing options for infrastructure are introduced. Equity and the distribution of resources as a concept and goal of infrastructure finance are examined, with emphasis on John Rawl's first and second principles.

Lesson 6: User Charges, Special Districts, and Pay-as-you-go Finance

The exploration of sources of local government revenue continues this week with the study of user charges and special districts. All forms of pay-as-you-go finance of infrastructure are examined, from capital reserves to exactions. The third quiz is administered.

Lesson 7: Debt Finance

The focus of this week's readings and exercises is on debt finance for infrastructure, from general obligation bonds to revenue bonds and capital leases. Students will receive bond ratings, conduct exercises estimating annual payments on general obligation bonds, and play a game resulting in the selection of financing mechanisms for capital projects proposed in their hypothetical cities.

Lesson 8: Cost-Benefit Analysis and Public–Private Partnerships

With this lesson, the focus moves to the project level. The process of cost-benefit analysis is introduced, as are the challenges involved in forecasting project costs and revenues. In this context, the benefits and pitfalls of public-private partnerships are explored. The fourth quiz is administered.

Lesson 9: Privatization

On the basis of the previous week's discussion of public-private partnerships for the delivery of projects, this lesson expands the notion of partnerships from infrastructure projects to infrastructure

services. The challenges of privatizing delivery and the means to evaluate the success of privatization efforts are examined.

Lesson 10: Wrap-Up and a View Abroad

The final lesson opens discussion to the means and methods of financing infrastructure internationally. The role of the private sector in project finance is examined with the review of recent reports on infrastructure markets by Fitch. The course closes with the reconsideration of sustainability in light of the concepts, models, and practical issues for infrastructure finance as studied in this course. The fifth and final quiz is administered, and discussion turns to a wrap-up of previous quiz and discussion contents, and major themes in preparation for the final exam.

About the Assignments

Course Requirements

- 5 quizzes based on readings
- Participation in 5 discussion forums
- CIP project (4 assignments)
- Final exam (short essay answers)

Capital Improvement Program (CIP) Project

The CIP project assignment involves the creation of a basic budget and detailed capital improvement program–including fiscal policies, criteria for evaluating projects, and allocation of revenues and financing mechanisms–for a hypothetical city. The CIP and its supporting documents, exercises, and procedures are developed over time and submitted as four assignments. The four assignments, in the form of scripted presentations and/or policy memos are due in Lessons 4, 6, 8 and 9. Together, the four assignments will count toward 50 percent of your grade.

Discussion Forums

You are required to post to each of the five discussion forums in this course. The week's topic will be released during the week in which the forums are held, and the forums will close as each week concludes. You will be required to make a one-page (200-300 word count), substantive post responding to the topic question. Before posting, read the postings of your classmates. You are also encouraged, but not required, to respond to your classmates by

- summarizing points where you agree and disagree with one posting; or submitting a
- revised posting, taking into account what you learned from the work of your classmates.

Postings will be graded on content pertaining to the readings and materials provided in the lessons of each week. The aim of these discussion forums is to facilitate collegial interaction among course participants, to encourage students to support each other in their understanding of the concepts

presented in this class and their applicability, and to provide feedback to the instructor on how well students are learning the course content.

Note: If you have questions that you don't want to discuss with the entire class, you may e-mail your instructor directly. Your instructor reserves the right to post your direct questions—anonymously—on the General Discussion Forum if the questions seem important or representative enough that the entire class would benefit from them.

Final Exam

A final exam (short essay answers) will be based on the lessons and the readings, and is due at the end of the quarter. Lesson 10 of the course will include a review of the course and preparation for the final exam.

Grading and Assessments

Academic Standards

Grading will be based on content, organization, and measures of style appropriate to writing at the graduate level. Style refers to your method of citing sources, grammar, punctuation, and related issues. I urge you all to refer to the *Chicago Manual of Style* (16th edition, University of Chicago Press) as you compose and edit your work.

Grading

Grades	
5 quizzes based on readings	10 points each (50 points total)
Participation in 5 discussion forums	10 points each (50 points total)
CIP project (4 assignments)	150 points each (group grade) 50 points (individual grade for entire CIP project) (200 points total)

Graded activities are weighted as shown in the following table:

Final exam (short essay answers)	100 points
Total	400 points

You will receive a numeric grade for this course. The numeric grading system used by the University of Washington relies on a decimal scale between 1.7 (low) and 4.0 (high). For graduate courses, grades below 1.7 are recorded as 0.0 and no credit is earned. A minimum of 2.7 is required in each course that is counted toward a graduate degree. A 3.0 cumulative average in graduate work is required to receive a graduate degree.

Grading Criteria

Grades on the assignments will be based on

- addressing all parts of each assignment;
- providing adequate treatment of each part of the assignment (for example, if an item calls for an explanation of factors involved, an answer that lists factors without explaining them will be inadequate);
- relating your work on the assignments to course readings, lessons, discussions, or supplementary readings as appropriate; and
- documenting your sources (that is, providing citations to published material, government documents, personal interviews).

Assignments that are partially completed will not be graded.

Here are descriptions of the criteria for your performance in this class. If you meet these criteria for all your work, you will be graded appropriately. Instructors may "interpolate" grades between these standards as they see fit.

Excellent and exceptional work for a graduate student. Work at this level is consistently creative (where appropriate), thorough, well-reasoned, insightful, well written and shows clear recognition and incisive understanding of the important materials and issues. All assignments

4.0 submitted are of good professional quality. The value of individual contributions to this course is considerable and positively affects the learning of all participants.

Strong work for a graduate student. Work at this level sometimes shows signs of creativity, is thorough and well reasoned, and demonstrates clear recognition and good understanding of the

3.7 important materials and issues. Assignments submitted lack professional quality but demonstrate effort and concern for quality. The value of individual contributions to the course is strong and occasionally significant.

3.3 Competent and sound work for a graduate student. Work is well reasoned and thorough but not especially creative or insightful. The student shows adequate understanding of the important materials and issues although that understanding may be somewhat incomplete. Work submitted is competent but not remarkable. The value of individual contributions to the course is such that they do not influence the quality of the course one way or the other. This grade indicates neither exceptional strengths nor exceptional weaknesses, but is the grade for "average" graduate performance.

Adequate work for a graduate student. Work is moderately thorough and well reasoned, but with some indications that some of the important materials and issues is less than complete and

3.0 perhaps inadequate for graduate study. The value of individual contributions to the course is minimal. However, the work is above the minimal expectations for the course.

Borderline work for a graduate student. Work barely meets the minimal expectations for the course and may occasionally fall below them. Understanding of the important materials and issues is incomplete or has not been demonstrated. There is little positive value in the individual

2.7 contributions to the course and there may even be negative effects on the overall learning. Consistent overall performance at this level would be below that of adequate graduate student performance.

Study Tips

Exercises from this class are open-book, so no memorization is involved in the course. The course is designed for you to learn from readings and from completing the assignments.

Some hints:

- Pace yourself.
- Set aside time each week that is dedicated exclusively to the course.
- Do the readings and explore the topic using the link(s) in the lesson.
- Begin assignments as soon as possible after completing the readings. Use all available resources, including your fellow classmates.
- For the assignments, select an infrastructure system that you have a real interest in. Systems close to home may be easier in terms of obtaining information.

About the Instructors

Stefanie Young

Stefanie Young is President and Principal at the Seattle engineering and project delivery firm, Delta E Consulting. Stefanie expertise is in sustainable development - with clients such as Sound Transit, USGBC, Microsoft and multiple developers within the Puget Sound region. Along with supporting sustainable design strategies, Stefanie guides her clients on how to navigate different financial mechanisms to support their development - such as incentive procurement, government financing (including utilization of the Inflation Reduction Act), and leveraging ESG measures. She has a Masters in Urban Planning from the University of Washington, and a Bachelors of Architecture from the University of Oregon.

Keith Harris

Keith Harris is an Assistant Teaching Professor in the Department of Urban Design & Planning. Keith currently teaches in our undergraduate program, Community Environment and Planning and in our online Master of Infrastructure Planning & Management program. He also teaches in the Landscape Architecture department, and the Urban Studies program at University of Washington Tacoma.

...and a special thank you to the creator of this course Jan Whittingtion.

Jan Whittington

Dr. Whittington is an Associate Professor in the Department of Urban Design and Planning at the University of Washington, Seattle. Her PhD is in City and Regional Planning from the University of California, Berkeley, where she studied transaction cost economics with recent Nobel laureate Oliver Williamson. Prior to her academic career, she spent 10 years with infrastructure giant Bechtel Corporation as a strategic planner and environmental scientist. Her environmental interests arise from undergraduate degrees in Biology and Environmental Studies from the University of California, Santa Cruz. Her master's degree is in City and Regional Planning, from California State University, San Luis Obispo.

Dr. Whittington is the founder and director of the UW's Urban Infrastructure Lab, and is an associate member of several other laboratories at UW, including the Tech Policy Lab and the Center for Information Assurance and Cybersecurity. The research of the Urban Infrastructure Lab is oriented around the broad question of how to internalize the factors that markets do not currently consider in decision-making, to the detriment of our economic, social, and environmental well-being. Examples include the development and delivery of methods for climate-smart capital investment planning on behalf of the World Bank, the assessment of trade-offs in security, privacy, and efficiency when smart cities and health care providers adopt new information technologies, and the inefficiencies that arise

from delivering infrastructure projects using traditional forms of contract and public-private partnerships.