

SPRING, 2013 SYLLABUS

UWM UP-692/CE-594, PHYSICAL PLANNING & MUNICIPAL ENGINEERING

Monday/Wednesday 2:00-3:15PM, Room EMS-145E, Spring 2013 (1st Class Wed. Jan. 23, 2013)

Prof. Edw. A. Beimborn, PhD (course originator, 1970s) (retired Dec. 2005)

Replacement Co-Instructors since Fall, 2007:

Russell Knetzger, AICP

City & Town Plans since 1960

Shorewood, WI 414-962-5108

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John Sigwart, PE

Miller Engineers & Scientists, Sheboygan (retired Dec.2010)

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Course Description:

This course will examine physical planning and municipal engineering practice with emphasis on how they might be performed in a small to medium urban or suburban community. The course will focus on the development of land, addressing such topics as environmental factors, terrain and soils, neighborhood planning, subdivision concepts, mapping and platting, street layout and design, provision of utilities - electricity, gas, water, sanitary sewer, storm sewers and drainage for flood-storage plus water cleansing; interaction with state and local government, organization of these governments, and general public works activities.

Course Objective:

Broad Objectives

The objective of this course is to provide an understanding of the interface between urban planning and civil engineering as they affect the land development process in the context of respecting the environment, while providing urban infrastructure.

Learning Outcomes

Upon completion of the course, students should have an understanding of:

- A. The nature of physical planning and municipal engineering practice with emphasis on how they might be performed in a small to medium sized urban or suburban community.
- B. The process used for the development of land as it considers issues in neighborhood planning, subdivision layout, mapping and platting, street layout and design, provision of streets, utilities - electricity, gas, water, sanitary sewer, drainage, storm sewer and storm water management.
- C. How engineers and planners interact with each other and with local government; organization and structure of such governments, and general public works activities.
- D. Knowledge of data required for land use planning and design.
- E. Knowledge of how physical factors affect project economics and feasibility.
- F. Knowledge of how land use tradeoffs are made in the development process.
- G. Ability to make tradeoffs with multiple factors in project planning and design.

Course Outline:

I. Organization of Local Government, Role of Planner, Municipal Engineer

Federal and State Constitutions, Statutes, Ordinances, Administrative Codes and Rules

II. Land Development Process

A. Soils and Terrain (Slopes), Floodplains and Wetlands, Environmental Corridors

B. Public Land Survey (Legal Description) of farms, tracts and lots

C. Context of Planning: Regional, County, Municipal including Neighborhood Plans

(EXAM # 1 of 5) (Gov't Structure, Legal Descriptions) (4th week)

D. Subdivision of Land (Student Designs #1 and #2, (unsewered) Conservation Subv., and Conventional Subdivision.)

Design principles, street and block patterns, sites, development of maps and plats, zoning restrictions, local approval process, county, regional and state reviews, financial feasibility
(EXAM #2 of 5.(Planning Law & Approvals) (9th week)

III. Student Design Work Continued (spread over remaining weeks to semester's end)

(Student Design #3 - urban residential subdivision, estimated costs all public utilities (sewers, water, sidewalks, etc.,) and all site preparation and roadway installation.

Public Utilities

A Sanitary Sewer systems

(EXAM #3 of 5) (Residential Sanitary Sewer Design, (12th week)

B. Drainage plan: storm sewer design (Rational Method and Manning Equation) and storage basins, effects of utility engineering principles on layout

(EXAM #4 of 5) (Storm Sewer Design) (13th week)

C. Public Water supply systems

(EXAM #5 of 5) (Sources of water, Distribution system principles) (14th week)

Transportation

Street layout and design principles: grid, curvilinear, open space conservation, industrial and commercial. Measurement of arterial street traffic volume flows (regional and county); transit usage; parking.

Final Exam: No Final Exam* . . **Last Class** Wednesday, May 8, 2013

(*Individual help on Design #3 available in lieu of final exam class period.)

Textbook and Reference Materials: (bring to each class)

"Physical Planning and Municipal Engineering", Edward A. Beimborn, PhD, course originator, copyright 2000 and 2005, updated with handouts, available from Clark's on Oakland Avenue (near Locust), ±280 pp., under \$35.00.

Many handouts are given over the course of the semester. Students should establish a 3-ring binder of at least 2-1/2 inch diameter rings to organize and store these handouts.

Tools:

This course includes student design work, requiring an engineer's scale (tenths), one or two triangles (small and medium), small set of colored pencils, circles & squares template, medium sized french curve, and a functions calculator. All of the drafting tools are for sale in the "Third Coast" store in the AUP commons.

Prerequisites by Topic:

Understanding or interest in spatial analysis and geography of urbanization.

Graphical/drafting skills or interest.

Ability to do cost calculations, or presentation, in a spreadsheet format.

College level algebra.

Requirements:

There will be five progress exams, and no final exam. The exams cover Gov't. & Public Land Survey; Planning and Approvals; Sanitary Sewers; Storm water management including Sewers and Storage; and public water supply.

The student analysis projects include a visit and short write-up of a municipal meeting, a windshield tour and short write-up of the study lands in southern Ozaukee County (14 miles via I-43 from UWM), its soils, terrain (slopes), wetlands and floodplains, natural features comprising its environmental corridors, and three individual student subdivision design projects for 80 acres of that overall 500 acre area. Student design work is continuous over the last 11 weeks of the 16 week course.

The final design project, called DESIGN #3, is an urban subdivision, meaning city-style lots, with full urban infrastructure improvements (public water and sewer, curb and gutter with storm water inlets, storm sewers leading to storm storage basins, sidewalk, street trees and lamps, and all private utilities (gas, electric, communications.)

The water and sanitary sewers must be designed to common municipal best practice, and the storm sewers engineered for progressively larger diameter leading to the storm storage basins. Costs must be submitted for all the infrastructure and related financing. These include site preparation (land clearing and grading, including of street beds,) and installation of all public utility pipes, curbed street paving, sidewalks, and parkway features (trees and street lights). Costs and finance charges must be totaled to yield an overall site figure.

Course Grading: (see accompanying page, “Course Grading” based largely upon, the previous to 2005, and as modified for Fall, 2007 and again for Fall, 2010). (Also see the second page attachment for conversion of numerical grades to letter grades.)

Due dates are provided for assignments as they are first handed out, and for Exams, all of which are take-home style, at least over a weekend. Due dates are printed on the Exam sheet.

Undergraduate/Graduate Differentiation: A graduate student taking this course will be required to do more verbal presentation to the class, and to do more advanced versions of the three class Design projects. This either means more careful plan drafting if done by hand, or conversion to CAD (Computer Aided Drafting.)

Course Web Site, E-mail Addresses: A web site for the course no longer exists. For student to student or instructor/student contacts, email addresses are preferred. (See instructor addresses, top of this Syllabus).

UWM POLICIES THAT AFFECT THE CONDUCT OF A COURSE

Participation by Students with Disabilities: If you need special accommodations in order to meet any of the requirements of this course, please contact either instructor as soon as possible.

Accommodation for Religious Observances: Students will be allowed to complete examinations or other requirements that are missed because of a religious observance.

Academic Misconduct: The University has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors.

A more detailed description of Student Academic Disciplinary Procedures may be found in Regents Policy Statements, UWS Chapter 14 and UWM Faculty Document #1686.

Complaint Procedures: Students may direct complaints to the head of the academic unit or department in which the complaint occurs. (Prior to 2012 this was the School of Civil Engineering and Mechanical Sciences, and since 2012 the department of Urban Planning, in the School of Architecture & Urban Planning). If the complaint allegedly violates a specific University policy, it may be directed to the head of the department or academic unit in which the complaint occurred or to the appropriate university office that enforces the policy.

Grade Appeal Procedures: A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow the established procedures adopted by the department, college, or school in which the course resides. These procedures are available in writing from the respective department chairperson, or the Academic Dean of the College/School.

A more detailed description of the grade appeal policy may be found in UWM Selected Academic and Administrative Policies, Policy #S-28 and UWM Faculty Document # 1243.

Sexual Harassment: Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the careers, educational experience, and well being of students, faculty, and staff. The University will not tolerate behavior between or among members of the University community that creates an unacceptable working environment.

Attendance: Incompletes. A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantiated cause beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of term work. An incomplete is not given unless you prove to the instructor that you were prevented from completing course requirements for just cause as indicated above.

A more detailed description of the Incomplete Policy may be found in UWM Selected Academic and Administrative Policies, Policy #S-31 and UWM Faculty Documents #1558 and #1602. Also, a description of this policy may be found in the UWM Schedule of Classes.

Financial Obligation. The submission on your registration form and your subsequent assignment to classes obligates you to pay the fee-tuition for those classes or to withdraw your registration in writing no later than January 15. It is important to both you and the University that you make payment on time. A complete description of UWM fee policies may be found in the Schedule of Classes.

Syllabus Modifications. Fall 2007, Fall 2010, Spring, 2012-13

Grading-Numerical to Letter Grade

UWM Course CE-594, Fall, 2007-08-09, Course AUP-692, Spring 2012-13

Physical Planning & Municipal Engineering

Russell Knetzger, AICP lead co-instructor, planning; John Sigwart, PE, co-instructor, engineering
Course Text & Course Creator Prof. Edw. A. Beimborn (ret.) 2005

Letter Grade	Numerical Grade	Grading Deducts
A+	98-100	0 to -2
A	93-97	-3 to -7
A-	90-92	-8 to -10
B+	88-89	-11 to -12
B	83-87	-13 to -17
B-	80-82	-18 to -22
C+	78-79	-23 to -22
C	73-77	-23 to -27
C-	70-72	-28 to -30
D+	68-69	-31 to -32
D	63-67	-33 to -37
D-	60-62	-38 to -40
F	59 or -	-41 or +

Grading

UWM Course CE-594, Fall, 2007-10; UP-692, Spring 2012-13
Russell Knetzger, AICP lead co-instructor (urban plans), John Sigwart, PE, co-instructor (civil engineering)

<u>ITEM</u>	<u>Percentage of Course</u>
Site Selection	2% (site visit & report)
Meeting Report	2% (Mtng. visit & report)
Study Area Analyses	6% Soils Table 6% Soils Map <u>12%</u> Topo Analysis 28%
Subdivision Design	10% Design #1 (Cons. Subdv.) 8% Design #2 (Conv Subvd.) 12% Design #3 (Urban Subdv.)
Utility Design & Costs	<u>12%</u> (on Design #3) 42%
Exams	6% I gov't.org 6% II plan/rev. 6% III san.swr. 6% IV storm <u>6%</u> V water 30%

Course Total

100%

September 8, 2010, Aug. 31, 2012