

# SPRING 2020 SYLLABUS

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

Spring, 2020 Tues./Thurs. 1:00-2:45PM, Room AUP-183, Start Tues. Jan.21, End. Thurs. May, 7

Spring Break, No classes Mar. 17 & 19

Prof. Edw. A. Beimborn, PhD (CE-594 course originator, 1970s) (retired Dec. 2005)

Current Co-Instructors: ( **Office Hours by Appointment Only**)

### **John Sigwart, PE (Ret.)**

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

Port Washington, WI (cell) 920-946-0215

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### **Jackie Mich.AICP, Asso. Planner**

Vandewalle & Associates

Milwaukee, WI 414-988-8654

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### **Course Description:**

This 15 week, 30 class sessions course will examine physical planning and municipal engineering practice with emphasis on how they might be performed in a small to medium size 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 together they affect the land development process in the context of respecting the environment, while providing urban infrastructure, and following applicable Statutes, Administrative Rules, and Ordinances.

#### **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, subdividing, mapping and platting, street layout and design, provision of streets, utilities - electricity, gas, public 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. Requirements for successful urban revitalization.

### **Course Outline:**

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

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

#### **II. Land Development Process**

- A. Soils and Terrain (Slopes), Floodplains and Wetlands, Environmental Corridors
- B. U.S. Public Land Survey-NW Territories (Legal Description) of farms, tracts and lots
- C. Context of Planning: Regional, County, Municipal, including Neighborhood Plans

(EXAM # 1 of 5) (Government Structure, Legal Descriptions)

- D. Subdivision of Land (Student Project #1 Conservation Subdivision) with public sanitary sewer and storm sewer design.

Design principles, street and block patterns, building 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)  
(EXAM #3 of 5) (Residential Sanitary Sewer Design)  
(EXAM #4 of 5) (Residential Storm Sewer Design)

**III. Presentation of the basics of Urban Redevelopment/Revitalization** and Analysis of the proposed “*Brown Deer Original Village Revitalization*”, case study by Nate Piotrowski, Planner, Village of Brown Deer (Student Project #2- Case Study Analysis).

**IV. Student Design Work Continued** (spread over remaining weeks to semester's end)  
(Student Project #3 - Urban Residential Subdivision) with public water system design; estimated costs of infrastructure and financial sureties.

(EXAM #5 of 5) (Sources and treatment of water, Distribution system principles)

**V. Transportation (open discussion time dependent)**

Street layout and design principles: grid, curvilinear, open space conservation, industrial and commercial.

**VI. Final Exam:** No Final Exam\* **Last Class** Thursday, May 7, 2020

(\*Individual help on Project #3 available in lieu of UWM schedule for final exam)

**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 Graphics at 2915 N Oakland Avenue (near Locust), tel.414-962-4638 to verify copies ready; ±280 pp., about \$40.00

***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:

**Drafting:** an engineer's scale (tenths); one or two triangles (small-6 inch long, medium 12 inches); colored pencils (5 min.); templates for circles & squares; plus. Timely brand No.T-41, 2.3"x5" green; and medium sized French curve (optional).

All of the above drafting tools are for sale in the “Third Coast Design Center” store in the AUP commons.

**Other Items:** A functions calculator;  
liquid white-out; and/or dry tape-out, for error correction;

**Note: A Light Table** is useful for tracing finished drafting over sketch work. The AUP building has two for student use.

**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 midterm or final exam. The exams cover Gov't. & Public Land Survey; Planning and Approvals; Sanitary Sewers; Storm water management including pipe sizes and Pond-Storage; and Public Water supply. These are ALL take home exams; issued on Thursday due back on Tuesday.

The student minor 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 two 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 15 weeks course.

The final design project, called Project #3, typically 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 a discussion of private utilities; gas, electric, communications).

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

**Course Grading:** (see accompanying page, Course “Grading” based largely upon the previous list to 2005, and as modified periodically from fall, 2007 through spring 2020. (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. *Note: You do not want to get behind in this course.*

**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 two 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).

**POLICY LINKS:** This course adheres to campus policies regarding students with disabilities, religious observances, active military service, incompletes, discriminatory conduct, academic misconduct, complaints about the course, grade appeals and firearms. For details about these policies, see

<http://uwm.edu/secu/wp-content/uploads/sites/122/2016/12/Syllabus-Links.pdf>

## 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 Urban Planning & Architecture). 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. Speaking first to the Instructor(s) is usually the quickest and simplest route to satisfaction.

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 "*I*" for *Incomplete* of a specific assignment or for the entire semester may be given in lieu of a final grade to a student who has carried a subject successfully until the end of the assignment or 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 assignment 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 & 2010, Spring, 2012-13-14, Fall, 2014, 2017, Spring, 2020

# **Grading-Numerical to Letter Grade**

UWM Course CE-594, Fall, 2007-08-09, Course UP-692, Spring 2012-20

## **Physical Planning & Municipal Engineering**

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

<b>Letter Grade</b>	<b>Numerical Grade</b>	<b>Grading Deducts</b>
<b>A</b>	<b>93-100</b>	<b>-0 to -7</b>
<b>A-</b>	<b>90-92</b>	<b>-8 to -10</b>
<b>B+</b>	<b>88-89</b>	<b>-11 to -12</b>
<b>B</b>	<b>83-87</b>	<b>-13 to -17</b>
<b>B-</b>	<b>80-82</b>	<b>-18 to -20</b>
<b>C+</b>	<b>78-79</b>	<b>-21 to -22</b>
<b>C</b>	<b>73-77</b>	<b>-23 to -27</b>
<b>C-</b>	<b>70-72</b>	<b>-28 to -30</b>
<b>D+</b>	<b>68-69</b>	<b>-31 to -32</b>
<b>D</b>	<b>63-67</b>	<b>-33 to -37</b>
<b>D-</b>	<b>60-62</b>	<b>-38 to -40</b>
<b>F</b>	<b>59 or -</b>	<b>-41 or +</b>

# Grading

UWM Course PP&ME, CE-594, Fall, 2007-10; UP-692, Spring 2012-2020  
John Sigwart, PE, co-instructor-lead (Civil Engineering) Jackie Mich, AICP, co-instructor (Planning)

## ITEM

## Percentage of Course

**Site Selection**

**2%** (site visit & report)

**Meeting Report**

**2%** (Munic. Mtng. & report)

**Study Area Analyses**

**6%** Soils Table

**6%** Soils Map

**12%** Topo Analysis

**28%**

**Subdivision Des/Anal**

**20%** Project #1-Cons. Sub.

Concept-6%, Drafting-3%, San./Storm.-11%,

**Utility Design & Costs**

**8%** Project #2-Urban Redevel.

Village of Brown Deer Case Study/Analysis

**14%** Project #3 (Urban Subdv.)

Concept-4%, Drafting-3%, Water Engr.-2%, Costs-5%

**42%**

**Exams**

**6%** I govt.org

**6%** II plan/rev.

**6%** III san.swr.

**6%** IV storm

**6%** V water

**30%**

**Course Total**

**100%**