Course Time
Monday, Wednesday, and Friday 10:00-11:30 am

Instructor
Dr. Runzi Wang, Assistant Professor
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Office hour: By Appointment

GSi: Chen Zuo
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Office hour: TBD

Course Description
Site Engineering provides a technical background and practical exercises in the fundamental knowledge and skills of Landform Grading, Earthwork, Drainage, Hydrology and Surface Hydraulics, Stormwater Management and Street Layout and Basic Geometric Design.

Learning Outcomes and Course Objectives
The objectives of the course are:

1. To acquire an entry level knowledge and skill in the principles of land form manipulation and preparation of grading plans and to demonstrate their knowledge by achieving passing scores on examinations and practical exercises in preparation of grading plans;

2. To acquire an entry level knowledge and skill in the computation of earthwork volumes and to demonstrate their proficiency by achieving passing scores on written examinations and successful completion of practical earthwork computation exercises;

3. To acquire basic knowledge in hydraulics, hydrology, drainage design and stormwater management and demonstrate that knowledge by achieving passing grades on a written examination and successfully completing a studio exercise in urban stormwater management;

4. To acquire a general understanding of intermodal transportation planning and to acquire an entry level understanding of the geometric design of highways and streets;
As you become familiar with engineering methods, it is critical to think of site design and site engineering as partners — neither standing alone, both stronger when considered together. Site engineering is distinguished by its relatively quantitative content. The basic math you need to do this kind of work includes simple arithmetic, algebra, and geometry. The biggest challenge is not working the numbers. It is learning how to translate concepts, ideas and intentions into two-dimensional documents and three-dimensional forms. Trial and error and numerous iterations are a part of the process.

**Required Textbook**

**Suggested Reference**


**Course Logistics**
This class emphasizes the importance of participatory, interactive and hands-on learning experiences. This class will involve a series of lectures, exercise assignments, projects, and examinations. Students are encouraged to ask questions or share information at any time during the lectures. The rest of class will be devoted to practice and apply knowledge from lectures with in-class exercises or assignments. It is expected that most homework and exercises can be completed in class with the help of GSI and instructor. Digital course materials such as handouts, homework, assignments and supplemental materials will be stored in CANVAS (canvas.umich.edu). You must check on new releases constantly and download them for use. Exams are typically close book, close note and no cell phone. Exams are typically close book, close note and no cell phone or computer.

**Supply List**
- An engineer’s scale (a 3-sided ruler marked in 1/10ths of an inch at 10, 20, 30, 40, 50, and 60 graduations to the inch)
- A scientific calculator
- Color pens, pencils, and colored markers (several different line weights as well as diverse colors including a black and a gray)
- Trace paper
- Masking tape
- (Recommended) a laptop computer

**Grading Policy**
Weighting
Exercise 1-11 55% (each 5%)
Final Project 15%
Exams 30% (each 15%)
Total 100%

Exercises – Studio exercises typically are graphical vignettes that require knowledge of landscape design and technical competence to create reasonable, practical, cost-effective and safe solutions. Therefore, exercises shall be professionally drafted for clear communication. Exercises of poor drafting quality will be subjected to severe point deduction. Incomplete works that do not provide final solutions will not be accepted. Incomplete works will receive a grade of zero. Typically, the due date is one week after it is issued and the assignment will be collected in the beginning of the class. Submissions after instructors have started the class (e.g., the lecture) will be considered late. ALL late exercises will be graded for half credit (50%), and no exercises will be accepted after the graded assignments are returned, resulting in a grade of zero.

Exams – Two exams (one midterm and one final) will be given. Exams will focus on application of technical concepts. Exams will be limited to 1.5 hours. The final exam is on Apr. 17 from 10:00 am to 11:30 am.

Final Project – The final project will be a three-week practical residential project involving grading, erosion control, and stormwater management. It is a group project with 2-3 students in each group. Students will submit plans of landform grading (with erosion control details) and bioretention design (both construction map and planting design map). Selected projects will be implemented in summer 2023.

Extenuating circumstances – If, at any time, extenuating circumstances interfere with your ability to meet class requirements, students are encouraged to contact Dr. Wang prior to passage of a due date, giving of a quiz or exam, etc. The ability to make up missed work and the terms of any allowed make-up will be determined on a case-by-case basis.

Academic Integrity and Policy
Integrity in research and scholarship is a fundamental value of the University of Michigan. It is the responsibility of all students to conduct research and scholarly activities in an ethical manner at all times. An indispensable part of graduate education is for students to become knowledgeable about the responsible conduct of research and scholarship appropriate to their discipline or field of study. Students are responsible for understanding and observing the graduate school’s academic and professional integrity policy. Students are also expected to understand and maintain standards of integrity and professional conduct endorsed by their program that are particular to their field of study and research.

Students are referred to Rackham Academic and Professional Integrity Policy
that may be found at the website: https://rackham.umich.edu/academic-policies/section8/

**Americans with Disabilities Act (ADA) Policy Statement**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services by visiting https://ssd.umich.edu/.

**Professionalism, Respect and a Positive Learning Environment**
You are expected to treat your instructor and all other participants in the course with courtesy and respect. Your comments and written communications to others should be factual, constructive, and free from harassing statements. You are encouraged to agree or disagree with other students, but such disagreements need to be based upon facts and documentation (rather than prejudices and personalities). Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, gender, age, culture, religion, politics and sexual orientation. If you experience any such harassment during this course, please contact your instructors immediately.

Students in this course are also responsible for being familiar with the Universities student rules and policies: https://spg.umich.edu/.

**Student Well-Being**
Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, mental health, alcohol or other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help is a courageous thing to do for yourself and those who care about you. If the source of your stressors is academic, please contact me so that we can find solutions together. For students’ personal concerns, U-M offers many resources at https://wellbeing.studentlife.umich.edu/resources-list. You can also search for additional resources on that website.

**Class Schedule:**
*See attached*
We will try and follow this schedule throughout the term, but some adjustments may become necessary or desirable and they will be discussed at the beginning of the appropriate studio.