



LANDSCAPE CONSTRUCTION: TOPOGRAPHIC DESIGN

ARCH 534

Units: 3

Instructor: Alexander Robinson, ASLA, FAAR, Associate Professor

Meeting Day and Time - Tuesdays, 9:00 am to 11:50 am

Dates: January 9, 2024, through April 23, 2024

Location: Landscape Corner, Watt Hall 3rd Floor, North Corner

Standard Office Hours: Tuesdays 2-3PM, slack to confirm appt.

Contact Via email: alexander.robinson@usc.edu

Communication via Slack (to register, go to <https://cio.usc.edu/digital-campus-slack/>)

Course Title and Description

The course title **Landscape Construction: Topographic Design**, going forward is referred to as **Topographic Design**. Students enrolled in Topographic Design attain competency in site grading and Design, drainage design, stormwater management, and related areas of study.

Learning Objectives and Outcomes

Upon completion of Topographic Design, students possess the knowledge, skills, and abilities to perform these tasks:

- ◆ grade a site of moderate complexity through the revision of contours and the utilization of natural and human-made *contour signatures*
- ◆ use basic grading formulas to calculate grade, length, vertical difference in elevation, and cross-slope, and provide spot elevations to articulate a grading solution
- ◆ design drainage systems and apply standard drainage formulae such as the Rational Formula (used to size drainlines)
- ◆ apply stormwater management design principles in the design of retention and detention basins, bio-retention systems, green roofs, rainwater harvesting systems, subterranean stormwater storage, and use of permeable paving
- ◆ design aesthetically satisfying grading solutions

Students also possess knowledge, skills, and abilities customarily associated with Topographic Design including ability to:

- ◆ perform a basic elevation survey
- ◆ create a topographical map from raw survey data
- ◆ perform cut and fill calculations
- ◆ design for erosion control
- ◆ navigate current codes and ordinances that pertain to grading, drainage and stormwater management design
- ◆ work effectively with those in allied professions
- ◆ solve problems in construction in the context of site grading
- ◆ place expansion/contraction joints in concrete paving

Assignment of Two-Part Term Project

- ◆ Part 1 is assigned at the first meeting. The assignment is to create a virtual photo album consisting of 24 digital photographs that will be completed for hand-in at the 14th week. Part 1 is worth a total of 100 points.

- ◆ Part 2 is a joint course project that will be done in conjunction with Takako Tajima's ARCH 541b Design Studio*, to be assigned for both classes later in the semester. Grading of your Term Project Part 2 is independent, meaning Takako Tajima will grade the design aspects of your Term Project while I will grade the grading, drainage, and stormwater management aspects. The Topographic Design part of the assignment will be due for hand in at the 15th week. The grading is worth a total of 200 points for the Topographic Design portion of the assignment. **For those who are not in her class, a suitable replacement assignment will be provided.*

Grading of Assignments

Assignments are evaluated for completeness and correctness. Grading is a subtractive process meaning that each assignment is accorded the total maximum points for the assignment with points subtracted for incomplete or incorrect solutions.

Return of Graded Assignments

Homework assignments are graded and returned the week following the hand-in date. Solutions are attached to all graded homework assignments so you can compare your solution to one that is technically correct.

How You Will Be Evaluated

Letter grades are based on the point system described below under Grading Standards.

Grading Standards

Homework Assignments, twelve, each worth 50 points	600	points	46 % of the total
Mid-term Exam	100	points	8 % of the total
Final Examination	200	points	16 % of the total
Term Project Part I	100	points	8 % of the total
Term Project Part II	200	points	16 % of the total
Class Participation and Diligence in Doing Exercises	100	points	8 % of the total
Total Points Possible for Semester	1300	points	100%

Point Spread Determines Letter Grades

GRADE	FROM	TO	C+	1084	1049
A	1300	1229	C	1048	1013
A-	1228	1193	C-	1012	977
B+	1192	1157	D+	976	941
B	1156	1121	D	940	905
B-	1120	1085	D-	904	869

Critical dates to be aware of

Term Project Part 1 assigned – January 9th (Note that Term Project Part 2 will be assigned later in the semester)

Mid Term Exam – at the 7th Meeting, February 20th

Spring Recess – March 9th – 17th

Term Project Part 1 due at the 14th Meeting, April 16th

Term Project Part 2 due at the 15th meeting, April 23th

Final Exam – assumed May 9th (time and place to be announced)

Technological Proficiency

A laptop or desktop computer is a requirement as well as knowledge of *standard computer software*. Standard software includes word processing software such as Microsoft Word or Apple Pages, spreadsheet software such as Excel or Numbers, presentation software such as PowerPoint or Keynote.

Attendance

Pursuant to the School of Architecture's attendance policy, you may miss the equivalent of one week of class sessions without directly affecting your grade and your ability to complete the course (for Topographic Design, that's *one class session* since it meets once a week). If additional absences are required for a personal illness/family emergency, pre-approved academic reasons or observance of religious holidays, each instance of absence must be discussed and evaluated with me and the appropriate administrator on a case-by-case basis. For each absence over the allowed number, the student's letter grade is lowered 1/3 of a letter grade (e.g., A to A-).

Tardiness

Class begins at 9:00 am. Please be in the classroom and ready to begin by that time. Any student not in class *within the first 10 minutes* is considered tardy; any student absent for more than 1/3 of the class (that is, one-hour late or more) will be considered fully absent. If you do arrive late, please be respectful of the class while it is in session.

Printing

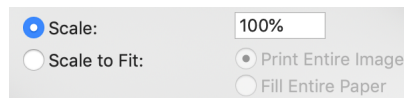
All class materials will be printed for you. Nevertheless, there will likely be times when you will want (or need) to reprint specific handouts. All class materials are available on Blackboard and will remain available for the duration of the semester.

Before printing, carefully read this section.

PDF Reader defaults to Scale to Fit. This Setting Must be Changed to Scale 100% as Shown in the graphic below.

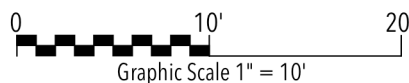
The Problem: The default *Scale to Fit* setting arbitrarily reduces the scale of the printed page, which makes it impossible to solve scaled graphic problems. This requirement applies to both standard U.S. letter-sized and standard 11" x 17" ledger-sized drawings. Be sure to confirm that your print setting is set to *Scaling None*.

How to Check and Change This Setting: When you issue a print command, a print settings dialog appears. The part of the dialog that pertains to scaling will appear something like this (Mac shown; a Windows PC is similar).



Set Page Scaling to 100% Print Settings

Scale Verification - To facilitate scale verification, all handouts that include imbedded *to-scale drawings* include a *graphic scale*.



Example Graphic Scale (for 1" = 10')

For any printing you do yourself, it is your responsibility to ensure that the scale is correct.

Other things to be aware of:

- ◆ Adobe, like most software publishers, occasionally issues security patches or updates for its software. When a patch or update is installed, Page Scaling *often* reverts to the default *Scale to Fit* setting. Therefore, if you install a patch or an update, re-verify that Page Scaling is still set to Scale 100%.
- ◆ Portable Document Format Files – All files posted on Blackboard are saved as PDFs to facilitate viewing and printing.

Help and Office Hours

Help is only an email or Slack away, or in person by appointment. I will try to answer your

If you are unable to solve a problem within a reasonable length of time, **ask for help!** Contact me by any of the above methods. If I am available, I will respond to your question(s) as soon as I'm able to. A uniquely effective option is to set up a Zoom session. If you, or a small group of students, would like to schedule a Zoom session, let me know when you wish to meet via a text or email. Sending a graphic image attached to your email or text is an advantage. If you have access to a scanner, using it will preserve the scale of the drawing. If you send a photo of a graphic image, make sure the photo includes a graphic scale, a dimensioned line, or include the part of an engineer's scale that matches the scale of your drawing in your image. When photographing graphic images, keep the face of your camera or mobile device parallel to the drawing being photographed to minimize distortion. Using an enhancement app such as CamScanner will improve the quality of any photos you submit, especially if your lighting is poor. Save scans or photos in any one of these formats: JPG, PNG, TIFF, or PDF (see page 1 for contact info).

Optional Recommended Books

- ◆ *Time-Saver Standards for Landscape Architecture* by Charles Harris and Nicholas Dines. Publication Date: February 4, 2002; ISBN-10: 0071357610; ISBN-13: 978-0071357616, Edition 1. Amazon sells this book new for approximately \$150, but used copies are usually available for less. *Time-Saver Standards* is the one book that should be in every landscape architects' personal library.
- ◆ *Site Engineering, 6th edition*, by Steven Strom, FASLA, Kurt Nathan, MS, PE, and Jake Woland, ASLA, published by Wiley. ISBN 978-1-118-09086-2 (cloth-bound version). *Site Engineering* is arguably the most thorough book on the subject of grading, drainage, and stormwater management. However, many find it overly technical.
- ◆ *Landforming: An Environmental Approach to Hillside Development, Mine Reclamation and Watershed Restoration*, August 3, 2007, Horst J. Schor and Donald H. Gray. Horst Schor is the originator of landforming as we know it today.
- ◆ *The Devil in the White City*, a novel by Erik Larson, based on real-life events. According to a critical review: "This is the story of three men's obsession with the Chicago World's Fair of 1893 (the Columbia Exhibition). One is its architect, one is its landscape architect, and the other a murderer. *The Devil in the White City* draws the reader into a time of magic and majesty, made all the more appealing by a supporting cast of real-life characters, including architects Daniel Burnham and Louis Sullivan, landscape architect Fredric Law Olmstead, Buffalo Bill, Susan B. Anthony, Thomas Edison, and others." If you've read *Devil in the White City*, then you know why it's being recommended; if you haven't read it, reading it will lend a real-world perspective to the importance of site grading, site drainage, and stormwater management, plus it's also an engaging story.

White Papers

White papers play an important role in topographic Design; they supplement the course reader and in-class lectures. A white paper is defined as an "authoritative report or guide that informs readers concisely about a complex issue" (attributed to Wikipedia). White papers are considered, by default, part of your reading assignment for the week in which it was handed out.

Homework Assignments and Exercises

There are 11 homework assignments, each worth 50 points (600 total points), toward a semester total of 1,300 points. Thus, homework assignments constitute about 42% of your grade.

In addition, 35 in-class exercises are planned for the semester. Many exercises are crafted to introduce and directly support the current homework assignment. Exercises are not graded but are to be done in class. Think of them as you would a sketch pad (if you wish to retain a pristine copy for later reference, you can print as many copies as you wish by downloading exercise file from Blackboard). Some exercises, particularly early in the semester, have more problems than there is time to do them in class. This is intentional. Many students find doing extra repetitions beneficial. Detailed solutions are provided with all exercises.

Staying on Schedule and Late Work

The due date for submission of homework is given on the first page of each assignment. Keeping up with assignments is critical in Topographic Design. All assignments *are due before the beginning of class on the due date*. Before handing in your work, check to make sure your name is on the first page of the assignment and staple your work (a stapler will be available at the front of the classroom for your use). Place your completed homework on the table in the front of the classroom at the "HOMEWORK" placard.

Topographic Design is one class you do not want to fall behind in! For my part, I will do whatever it takes to keep you up to date, including encouraging you to schedule office hours for extra help. Assignments received after the due date are penalized 10% of the possible point total for every week the assignment is late beyond the original due date (this means that if a homework assignment is past due one week, the deduction is 5-points which yields a maximum final score of 45-points; two-weeks late results in a penalty of 10-points for a maximum final score of 40-points, and so on). If there are extenuating circumstances for work being late (e.g., illness), it is your responsibility to discuss those circumstances with me promptly.

Organizing Handouts

Due to the nature of Topographic Design and the way it's taught, you will end up with a massive volume of written and graphic material. You are hence strongly encouraged to purchase a three-inch 3-ring binder at the beginning of the semester to accommodate the handouts (expect to fill this notebook!). In setting up your notebook, give thought to its organization. Your goal is to optimize discoverability

Going forward, this material will become invaluable as a resource as you continue toward your degree here at USC, and then as you develop professionally, and finally in helping you prepare to take *and pass* the Grading, Drainage, and Stormwater Management portion of the Landscape Architects Registration Examination (LARE). Point to keep in mind: The Grading, Drainage, and Stormwater Management portion of the LARE *is by far the most difficult section to pass* – historically, it has always had the lowest pass rate of all the sections. The Grading, Drainage, and Stormwater Management section of the LARE will be a topic of discussion as the semester progresses.

Class Participation

Class participation comes in several forms. One that's encouraged is asking questions that relate to what is currently being discussed. You may ask questions during class at any time by raising your hand (old school method), or when there's an appropriate break, feel free to just speak up.

Another kind of class participation that I proactively encourage is working on exercises during class. Only by doing them during class will you gain the full advantage of what these learning tools have to offer. Repeating the crux of a previous note: Treat exercises as a place to think graphically without inhibitions. And remember, if you want a pristine version of any exercise, you can always download one from Blackboard and print it out.

Working with Others

When you help a classmate, you also help yourself. Working with others often reveals deficiencies in your own understanding of a subject, or it can reinforce your understanding. Studying together, either in pairs or small groups, is highly recommended. But, do keep in mind that all final work must be your own and not that of another person or a group. Students often find themselves walking a fine line between doing their own thinking versus accepting the thinking of others as their own. Or, to put it another way, you only learn when you do the work yourself. Where outright copying is detected (believe me when I say it's always obvious), those doing the copying as well as those permitting it risk losing some or all of the points for a given assignment. Also keep in mind that copying is in direct violation of USC's Statement on Academic Conduct, which is rigorously enforced (see Academic Conduct, Plagiarism, below).

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with severe consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standard" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

USC Support Systems

Student Health Counseling Services - (213) 740-7711 – 24/7 on call

engemannshc.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, seven days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call

engemannshc.usc.edu/rsvp

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086

equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421

studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710

studentaffairs.usc.edu/ssa

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs, and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call dps.usc.edu. Non-emergency assistance or information.

School of Architecture + Fine Arts Library

The director of the library has asked that her contact information be included in all syllabi.

Shannon Marie Robinson <shannon.robinson@usc.edu>

Subject: Architecture + Fine Arts Library Information for Spring 2024

- Students can email Shannon or schedule research consultations with me, to be held online or in the AFA Library.
- There is now *a library guide for the School of Architecture*. This is a discipline-based starting point for research.

Questions? Please get in touch!

Class Schedule

Class #	Date	Content	Assignments Due
1	1.9	Introduction to Grading & Contours	
2	1.16	Contours & Slope	Assign 1
3	1.23	Field Trip: Contour Signature	Assign 2
4	1.30	Grading I	Field Trip Assign 1
5	2.6	Grading II	Assign 3
6	2.13	Grading III	Assign 4
7	2.20	Grading IV	Assign 5
8	2.27	Grading V	Assign 6
9	3.5	Drainage I / Mid Term Exam	
–	Spring Break		
10	3.19	Drainage II	Assign 7
11	3.26	Stormwater Management I	Assign 8
12	4.2	Stormwater Management II	Assign 9
13	4.9	Advanced Grading	Assign 10
14	4.16	Term Project II Review	Assign 11; Term Project I
15	4.23	Class Wrap Up – Final Prep	Term Project II
Final	5.7	Final Exam	