

Rutgers, The State University of New Jersey  
Landscape Architecture 11:550-350

## VISUALIZATION III: Computer-Aided Design for Landscape Architects

Fall 2016

Monday 3:55 - 6:55  
Wednesday 9:15 - 12:15  
Blake 129: LA Computer Lab

Instructor: Hany Hanafy  
Office Hours by appointment  
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### COURSE DESCRIPTION:

The contemporary practice of Landscape Architecture requires the designer to fluidly work in a variety of digital media and with an integrated approach to analog and digital design practices. Acquiring the fundamental skills of 2D drafting and 3D modeling facilitate landscape architects' ability to speculate, develop, produce, and communicate their spatial ideas with clarity and precision. This course will expand on the fundamentals of computer-aided design and drafting [CADD] as a design and communication tool in the practice of landscape architecture. Intended as a continuation and progression beyond the fundamental drawing principles and graphic design tools introduced in the earlier visualization sequence of courses (Landscape Drawing & Design Communication), this course is designed to further the students' understanding of 2D and 3D space, form, and the application of the standards of visual representation in the practice of Landscape Architecture. In this course the emphasis will be on learning by doing. Students will be given complex real-world drafting problems to execute and graphically communicate in relation to a course site.

### COURSE EXPECTATIONS:

Participants in this course will:

- Develop a confident knowledge of fundamental 2D drafting and 3D modeling techniques on multiple platforms.
- Distinguish between technical drafting, 3D modeling and illustrative graphics or renderings, as well as each media's role in professional practice and design documentation.
- Illustrate an understanding of the graphic standards for architectural design and construction drawings.
- Work progressively through the design process to develop and execute projects with increasing levels of detail and difficulty.
- Understand CADD as a means of communication and exchange between design disciplines.
- Acquire the core concepts of file structure, management, and sharing.

### LEARNING OBJECTIVES:

*In the first half of the semester, students will learn to:*

1. Use the fundamental tools and techniques of the industry-standard drafting program: Autodesk AutoCAD2016.
2. Digitally draft existing objects, buildings, and spaces to scale in 2D - representing these forms in multiple orthographic projection views: Plan, Section, and Elevation.
3. Use the tools within the AutoCAD program to maintain accuracy and precision in drafting.
4. Gather existing information about a building, space, or object through direct, on-site measurement and translate the

as-built information into a measured drawing set inclusive of detail and annotation.

5. Work effectively to coordinate a series of linked drawings through the use of a coordinated blocks library, XREF base drawings, and uniformly formatted title blocks and sheets.
6. Employ standards of graphic representation on landscape architectural drawings including: line weights, grid lines, labeling, nomenclature, and graphic symbols.
7. Demonstrate an ability to work in groups, developing and coordinating drawings in anticipation of work in a professional office.
8. Understand the fluid relationship between computer-aided design programs and the practical methods of file sharing and integration.

*In the second half of the semester, students will learn to:*

1. Use the essential tools and techniques of the three-dimensional modeling in AutoCAD and Rhinoceros.
2. Integrate their current 2D drafting skill set as a platform for 3D modeling.
3. Work productively and efficiently in the 3D modeling environment to create existing and speculative designs.
4. Identify best methods for modeling based upon a growing understanding of 3D form, landscape materials, and construction techniques.
5. Produce a comprehensive design package integrating a 3D model with environment, 2D drafted architectural drawing set, rendered views, and illustrated presentation level drawings.

#### **COURSE FORMAT:**

This course presents principles and techniques of computer-aided drafting and design through a combination of:

- Lectures / presentations
- In-class tutorial and exercises
- Weekly homework assignments
- Midterm and Final projects

#### **ASSESSMENT:**

Each homework assignment, midterm and final project will clearly identify the specific Learning Objective[s] contributing to the assignment/project, as well as, the specific design components required for the assignment. Students' work for assignments and projects will be assessed based upon established rubrics for the specific design assignment / project. The scoring rubric will be subdivided into the required design components of the project [categories such as: layers, units, precision, title block, et cetera] and corresponding points of completed work contributing to the overall grade of 100 points. The rubric will be returned to the student with a copy of their completed homework assignment or project where possible. Each component of the course is broken down into a percentile contribution of the student's overall grade and listed under GRADE COMPOSITION of this Syllabus.

#### **STUDENT OBLIGATIONS AND EXPECTATIONS:**

The course is a pre-requisite in the Landscape Architecture degree program and the third in the sequence of Visualization courses required by the student for graduation. In accordance with University policy, students are expected to work an additional 9.75 hours per week outside of class. Therefore, please prepare appropriate time in your schedule this semester in relationship to your other course work, employment and social obligations to prepare for and participate in class.

In addition, students are expected to:

1. Complete all weekly homework assignments and submit them, as directed, on the designated due date. Late homework will NOT be accepted.
2. Come to lecture and lab on time and get settled promptly. Late arrivals greater than ten [10] minutes will be marked as an absence.
3. Take notes during class presentations to help retain knowledge and repeat procedures outside of class. The instructor will not review any content that was missed by a student's absence or tardiness. *Therefore, your attendance will be directly related to your success in this class.*
4. Practice! Learning CAD programs requires consistent use and a willingness to ask questions and review new techniques and tools introduced in the classroom.
5. Complete Midterm and Final Projects on time. Late projects will lose one full letter grade for each day they are past due. Project Due Dates will be announced at the beginning of the term.
6. Seek help, when needed, during office hours and *in advance* of an assignment's due date.
7. Computers are to be used for only Autodesk programs, Rhino 3d, and Adobe CS6 as directed during class time. Students are NOT allowed to access the Internet or work on non-course related topics during class time. *Students who repeatedly abuse the use of the computer will be asked to leave the classroom and marked as absent.*
8. Turn OFF all mobile devices during class time. Mobile devices are not to be used during Lab meetings or Lecture. *Students who repeatedly have an issue with cell phone use will be asked to leave the classroom and marked as absent.*

#### EQUIPMENT AND USE OF FACILITIES:

The Department of Landscape Architecture requires that each student purchase a laptop [[http://landarch.rutgers.edu/current\\_students/laptoprequire.html](http://landarch.rutgers.edu/current_students/laptoprequire.html)]. In addition to the laptop, you will need a roller-ball style mouse. NOTE: The computer lab is not accessible when a class is in session. A schedule of courses using the Lab is posted on at the entry of the Lab. The Lab is a shared resource for the entire school body. Project deadlines will NOT be extended because resources were not available in the computer lab. Please plan your time accordingly. Please be aware that the Department's computer guidelines require a PC-based platform. There are differences between PC and MAC-based platforms and programs. The computer lab is PC based and the Department supports PC-based software. If you choose to utilize a MAC, you must adhere to the guidelines provided. AutoCAD 2016, Rhino3d-V5, and V-Ray are all installed on all desktop computers in the lab.

AutoCAD 2016: Students are required to download a copy of the free student licenses for AutoCAD 2016 software to their individual laptops for their personal use. Find the free downloads at: [students.autodesk.com](http://students.autodesk.com). Select the "Free software" tab at the top of the page and follow the instructions to download the basic platforms. If you have an issue with the download, see me.

Rhino3d: (Optional) Rhino 3d-Version 5 can be purchased for \$195.00 at the student rate from [www.rhino3d.com](http://www.rhino3d.com).

SketchUp Pro: Students are required to download a 1-year license for SketchUp Pro to their individual laptops for their personal use. SketchUp Pro can be purchased at the student rate from <http://www.creationengine.com/html/p.lasso?p=19568>.

Students are not required to purchase a textbook for the course. Students can utilize the free built-in and online tutorials [located at [students.autodesk.com](http://students.autodesk.com) and [rhino3d.com](http://rhino3d.com)], as well as, extensive videos and blogs online. However, if students want a book for personal use, two good titles include:

Omura, George and Brian C. Benton. Mastering AutoCAD 2013 and AutoCAD LT 2013, 1st edition. (*Autodesk Official Training Guides*; Sybex, 2012)

Courses cannot be taught without reliable facilities. The student is expected to use the facilities and equipment [printers, projectors, cameras, drafting, and computer equipment] responsibly with particular regard to the clearly established rules about their use as specified in the student handbook:

*Facilities & Equipment* rules cover access to the lab, vandalism, seat assignments, personalization of working spaces, smoking and drinking, use of lockers, access to the reference collection, and basic rules governing the use of the computer lab. Please note: the Department has determined that there is no eating or drinking allowed in the computer lab. Failure to observe these rules may result in loss of access to the lab. Access to the fabrication lab is granted after successfully passing the safety instructions. Access is monitored and can be revoked if students use tools they are not qualified to use or if students do not clean up after themselves.

#### ATTENDANCE:

The Department of Landscape Architecture requires attendance in all of its classes. All studio meetings including both Lecture and Lab are required. The individual student's development as a landscape architect is largely dependent upon two aspects of education. First, is the exposure to and assimilation of a body of information which relates to the field. Second, is the application of this knowledge through studio projects and problem-solving skills developed through critiques, reviews and interactions during each project. The Rutgers Landscape Architecture curriculum is designed to develop both areas. Attendance and participation in all lectures and studios are essential if the student is to achieve his/her maximum potential.

It is the policy of the Department that more than three [3] unexcused absences will result in a step reduction of the final course grade [for example, a B down to a C]. Each additional three absences will result in another step reduction. If a circumstance arises beyond your control, please notify the Instructor *prior* to the class meeting, and other arrangements will be made. Please note that attendance is taken at the start of class and late arrivals greater than 10 minutes will be documented as a full absence. In addition, students may not leave the class prior to the official end time of class unless the Instructor has officially dismissed the students, or the early departure has been pre-arranged with the Instructor in advance. In-class exercises and quizzes will be handed out during class periods. There will not be a chance to make up a missed exercise or quiz.

#### ASSIGNMENTS:

Students will be given weekly homework assignments at the end of each Lab meeting. Homework assignments are to be uploaded to the Sakai worksite Drop Box by 9:00 am of the following week [the day of the next section Lab meeting]. The due date and time will be reiterated on the assignment sheet and posted under Resources on the Sakai Worksite. **LATE HOMEWORK WILL NOT BE ACCEPTED.**

Homework will be returned in class the following week. If a student misses a class, whether excused or unexcused, it is the responsibility of the student to acquire the missed lecture's information and homework assignment and submit the homework on time. Except for documented circumstances truly beyond the student's control, all projects including Midterm and Final projects are due on the dates and at the times specified. **MIDTERM AND FINAL PROJECTS** that are incomplete on the due date should still be submitted on the due date in their incomplete state, to receive at least partial credit and fully completed, thereafter for a reduced grade. If a student elects to submit nothing, they will receive a zero. Any project work submitted late will lose a letter grade for each day past due. Working beyond a due date is both unrealistic in a professional setting and unfair to classmates who have completed their work on time.

#### GRADE COMPOSITION

In-class exercises 15%  
Weekly Homework Assignments 15%  
Midterm Project 30%  
Final Project 40%

#### POLICIES:

If you encounter any personal circumstances that inhibit your ability to fulfill the requirements of this course, you should immediately contact the instructor. In addition, any student with a special need, circumstance, or disability, should make an appointment to see the instructor during the first week of classes. If there is a plotting problem, PDF\_files can be uploaded or emailed to the instructor and the assignment will not be considered late. However, when assigned, a plotted version is due by the following class period and the late penalty will be assessed thereafter. All information in this syllabus and course schedule is subject to change. Any changes to the syllabus or schedule will be announced in the scheduled lecture periods and an updated version posted to the Sakai course worksite.

While students are encouraged to work alongside one another to learn the tools and techniques presented in this course and foster a positive studio environment, copying or sharing of digital information is not acceptable and will be considered a violation of the school's Integrity Policy.