Architecture 507
Theories of Computer Technology

Course Description and Syllabus for Spring 2014

The course description for Fall 2014 will be similar, but not the same. One big difference is that the class is on Mondays from 9 am – noon.

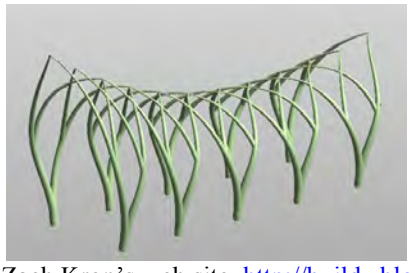
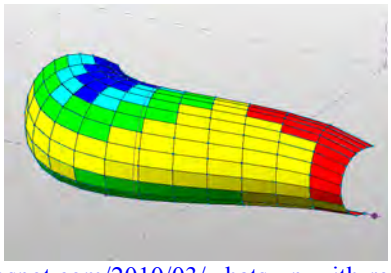
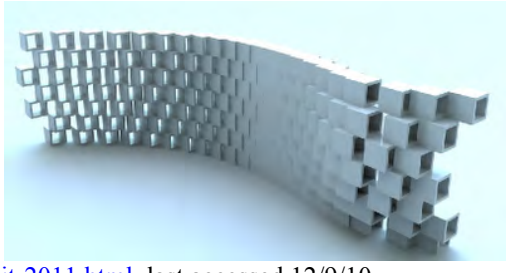
A computer-aided design system is most useful when the structured design inside the computer can be used for something besides merely producing a picture. As soon as the process of computer-aided design is considered as building a description of the object being designed rather than as a process of simply drawing the object, horizons become tremendously expanded. Ivan E. Sutherland (1973)

Contact Information
Please email or call Karen Kensek if you have questions. kensek@usc.edu, 213-740-2081, Watt 307.

General Description
Architecture 507 is a three unit course that meets on Fridays from 9 am – noon. The course will focus on the quote from Ivan E. Sutherland. Essentially what Sutherland was proposing is a system similar to a fairly recent development in computer software called building information modeling (BIM). BIM is one of the hottest topics in the architecture profession today. Learn what it is, how to apply it, and how it relates to sustainable design issues and the AEC industry in general. This course also relies heavily on the knowledge already in the profession: guest speakers and field trips will be used to enrich the class content with up-to-date information. It is important that you attend class on-time! In addition to many hands-on computer sessions by the instructor, there will also be guest lecturers from both the profession and the software industry. They have spent considerable time and effort to come talk with the class. Listen, be attentive, and ask appropriate questions. They are valuable resources.

This course is applicable to upper division undergraduate students and graduate students who have a strong background in traditional CAD and three-dimensional modeling. The course applies to the MBS graduate certificate if you are a graduate student. The primary software used will be Revit Architecture. Green Building Studio and/or Vasari and Navisworks will also be used. The final grade of the course is based on the homework assignments (70%), final project (20%), and participation (this will come from your feedback on the assignments, readings, pop quizzes, and email responses to the instructor) (10%). It is your responsibility to read your email for general information about the course and specific inquiries from the instructor that must be replied to.

Because of the rapid advancements expected in the technological underpinnings of the course, every effort is made to provide instruction that adjusts to current conditions and is generic to computer hardware and software platforms. Although offered in the School of Architecture, the techniques taught are equally applicable to others with an interest in the applications of building information modeling. Building science majors, structural engineering students, construction management students, and others are strongly encouraged to enroll. It is assumed that students have a basic understanding of 2D CAD and 3D digital modeling. Please contact the instructor if you have questions.

Zach Kron's web site, http://buildz.blogspot.com/2010/03/whats-up-with-revit-2011.html, last accessed 12/9/10

Homework Assignments
Homework assignments come out on Fridays and are usually one or two weeks in length. If an assignment is two weeks in length, it is because you need the additional time to complete it. Late assignments will not be accepted; turn in what you have on the due date at the beginning of class (9:00 AM). It will help you a lot if you read the entire homework assignment before you begin it, and then read it again as you are working on the assignment to refresh your memory, and read it again when you think that you are done to verify that you have the correct elements to turn in. Grades will be posted on Blackboard. There is also a final project and questions on the readings in this course.

LATE ASSIGNMENTS WILL NOT BE ACCEPTED; TURN IN WHAT YOU HAVE ON THE DUE DATE. There are no "make-up" assignments or extra credit. Do the absolute best that you can on each assignment and turn it in on time.

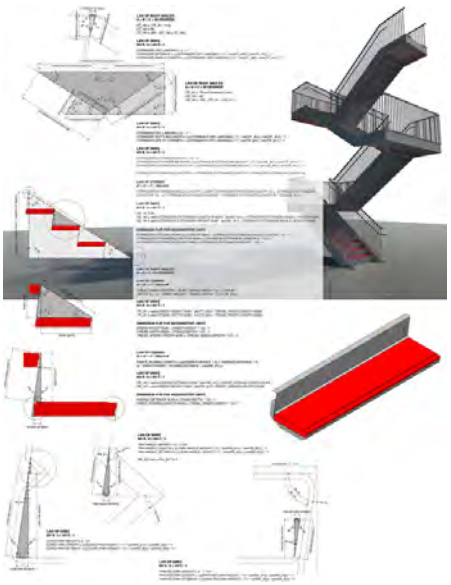
PLEASE NOTE THAT YOU ARE EXPECTED TO COMPLETE ALL HOMEWORK ASSIGNMENTS BY YOURSELF USING THE SOFTWARE THAT HAS BEEN ASSIGNED. COPYING OTHER PEOPLE'S FILES OR TURNING IN WORK THAT YOU DID NOT COMPLETE YOURSELF WILL RESULT IN A FAILING GRADE.

You will need at least three USB flash devices or a combination of these: Flash drive, portable hard drive, hard drive. One is for your assignment, one as a backup, and one for turning in assignments if required although usually Blackboard will be used for this. Label everything with your name and e-mail address.

Accounts
A USC e-mail account is also required for this course. Go on-line and verify that your USC account and Blackboard is working. Call 740-5555 if you have problems accessing your account. Read your e-mail at least once a day!

You will also need an Autodesk account to download software: students.autodesk.com .

Marcello Sgambelluri, conceptual modeler (it moves!)
http://buildz.blogspot.com/2010/04/elephant-in-room.html



Fuzzy Math session at AU, parametric stair
http://jasongrant.squarespace.com/

READINGS

Required Readings on Reserve: You are responsible for having the required items read **BEFORE** the date listed on the syllabus (except for the first week of the semester). There may be pop quizzes on the material in the required readings. There may be additional material as the class progresses. Other required readings have been posted on Blackboard; they are listed separately within the syllabus as they directly rate to specific homework assignments.

Green BIM: Successful Sustainable Design with Building Information Modeling, Krygiel, Eddy and Nies, Bradley, copyright 2008. On reserve at the AFA Library.
Chapter 2: Building Information Modeling, pp. 26 – 52 (**OPTIONAL**)

Chapter 5: Sustainable BIM: Building Form, pp. 127 – 164 **OR**
Chapter 6: Sustainable BIM: Building Systems, pp. 165-208

BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers, and Contractors; Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston; copyright 2008. TH437.B53 2008. On reserve at the AFA Library.

2011 version (page numbers in the parenthesis are for the 2008 version of the book)
Chapter 2: BIM Tools and Parametric Modeling, pp. 31 – 98 (pp. 25 – 64)
Chapter 5: BIM for Architects and Engineers, pp. 193 – 262 (pp. 149 – 206)
Chapter 8: The Future: Building with BIM, pp. 351 – 390 (pp. 285 – 317) (**OPTIONAL**)
Chapter 9: BIM Case Studies: **one case study of the several in the chapter.**

Introducing Revit Architecture 2008: BIM for Beginners, Eddy Krygiel, Greg Demchak, and Tatjana Dzambazova, copyright 2007. AFA NA 2728.K79 2007. On reserve at the AFA Library.
Chapter 12: Advanced Topics: the section on Families, pp. 345 - 358

BIM and Construction Management: Proven Tools, Methods, and Workflows, Brad Hardin, copyright 2009. On reserve at the AFA Library.
Chapter 1: BIM and Construction Management, pp. 1-35

Building Information Modeling: A Strategic Implementation Guide for Architects, Engineers, Constructors, and Real Estate Asset Managers, Dana K. Smith and Michael Tardif, copyright 2009. On reserve at the AFA Library.
Chapter 7: Building Information Exchange Requirements, pp. 153 – 170

McGraw Hill Smart BIM Report 2009.pdf (on Blackboard)
mhc_green_bim_smartmarket_report_(2010)_rfinal0.pdf (on Blackboard)

Mimic a Master Builder: A Tribute to Felix Candela, Alfredo Medina, pp. 10-15 (thin shell concrete forms)
AW201205lr.pdf

openBIM and COBie.zip (on Blackboard)
Construction Operations Building Information Exchange (COBie) | Whole Building Design Guide.pdf
openBIM_intro-2012.pdf
openBIM_workflow-2012.pdf

optional (on Blackboard)
aiab095712 - AIA BIM contract documents.pdf
National Building Information Modeling Standard (NBIMSv1_p1.pdf)

SOFTWARE

Software for the Class

If you have your own computer, please download Autodesk Revit 2014 (students.autodesk.com) **immediately**, then Navisworks Manage (students.autodesk.com) and Vasari (http://autodeskvasari.com/). Contact Enrique if you have problems (ebarajas@usc.edu). The software will also be available on computers in the University labs or in the School of Architecture for those who do not own a computer. These programs only run under **Windows** and are free for student use.

REFERENCE DOCUMENTS

PDF and Zip files for Software References on Blackboard

Please download all the files in the Content section on Blackboard.

Revit Architecture 2010-11.zip
Marcello Sgambelluri mass family handout.pdf and Marcello Sgambelluri Revit hardscape handout.pdf
adaptive components - misc.zip
Revit 2010 conceptual modeler.pdf
Revit Architecture 2010 conceptual modeler videos
- 2-3 Parametric Mass.mov
- 2-4_Adaptive_Components_Mass.mov
- 3-2 Components Pavilion.mov
- 3-3 Components Tower.mov
- 3-4.3_Adaptive_Component_Panel.mov

Navis - students.zip
thin shell concrete forms AW201205lr.pdf
McGraw Hill Smart BIM Report 2009.pdf
mhc_green_bim_smartmarket_report_(2010)_rfinal0.pdf .pdf
NBIMSv1_p1.pdf
openBIM and COBie.zip
aiab095712 - AIA BIM contract documents.pdf
dumpy house.zip

These references have LOTS of information for Revit. I find that the Table of Contents and Search are especially useful for finding what I am looking for.

revit_architecture-2011-user-guide-en.pdf
Revit 2010 FamiliesGuideArchitectureImpENU.pdf
http://wikihelp.autodesk.com/Revit/enu/2013

REQUIRED LECTURE OUTSIDE CLASS TIME

There may be a required lecture outside class time. More on that later. If you have a conflict, email kensek@usc.edu after the date and time is announced for a different assignment.

Images from students rendering homework assignment: Ji Wu, JaeYong Suk, Michael Makris

ON-LINE SOFTWARE REFERENCES

Interesting blogs that also link to other interesting blogs
Phil Lazarus - http://bimtroublemaker.blogspot.com/
Zach Kron - http://buildz.blogspot.com/
Nathan Miller - http://www.theprovingground.org/ , http://wiki.theprovingground.org/revit-api
LA RUG - http://losangelesrevitusersgroup.blogspot.com/
Marcello Sgambelluri - http://therevitcomplex.blogspot.com/
http://therevitcomplex.blogspot.com/2012/07/creating-walls-that-follow-site.html
http://therevitkid.blogspot.com/2013/07/revit-tutorial-massing-and-adaptive.html
Jay Zallan - http://cad-vs-bim.blogspot.com/
Jon Mirtschin - http://geometrygym.blogspot.com/
Jeremy Tammik - http://thebuildingcoder.typepad.com/blog/
Tim Meador – Hummingbird - http://ghhummingbird.wordpress.com/author/meadort/
Dynamo - https://github.com/ikeough/Dynamo
A community-driven collection of apps for the AEC industry - https://aec-apps.com/
Not BIM, but interesting tools - http://andrewmarsh.com/

Lynda (accessable from Blackboard)
http://www.lynda.com/Revit-Architecture-2011-tutorials/essential-training/62086-2.html

Autodesk
http://sustainabilityworkshop.autodesk.com/
http://sustainabilityworkshop.autodesk.com/design-strategies/net-zero-energy-buildings
http://sustainabilityworkshop.autodesk.com/software-tutorials

Glenn Katz - http://www.bimtopia.com/
http://bimcurriculum.autodesk.com/
http://wikihelp.autodesk.com/Revit/enu/2013
http://autodeskvasari.com/forum
http://students.autodesk.com/
http://resources.autodesk.com/Architecture/Revit_Architecture/Webcasts
http://seek.autodesk.com
http://wikihelp.autodesk.com/Revit/enu/2013/Help/00005-More_Inf0/0352-Beginner352
http://wikihelp.autodesk.com/Revit/enu/Community/Examples
http://wikihelp.autodesk.com/User:drafts/2011_Revit_Architecture_-_Video_Tutorials_1_of_3_-_Getting_Started_(ENU)
http://wikihelp.autodesk.com/Revit/enu/2012/Help/Revit_MEP_Beginner's_Guide

More references for Autodesk products including Revit are available at
http://www.revitcity.com/index.php
http://autodesk-revit.blogspot.com/
http://www.augi.com
http://designreform.net/tag/revit-familes/

Navisworks for Architects Screencast
http://resources.autodesk.com/Architecture/Navisworks/How_Tos
Watch this screencast and see valuable tips on how Autodesk Navisworks helps architects and designers experience enhanced control, collaboration, and information aggregation on even the most complex projects.

INTRODUCTION TO BUILDING INFORMATION MODELING

January 17

Lecture: Introduction to the course.
Course outline. Blackboard. Student examples.
Introduction to BIM
Basic user interface. Sketching. Family, instance, type.
House example with sun path diagrams, site commands, annotations, and setting up sheets to print.
Site: create site, create building pad
Labeling contours, Model Site <arrow) – to change contour settings
Spot coordinates, spot elevation, spot slope, dimensioning
Split surface/ define sub-region to make a different material

Read: Chapter 9: BIM Case Studies (Eastman, et. al.– read **ONE** case study)

Reference: Marcello Sgambelluri Revit hardscape handout.pdf
Reference: **http://therevitcomplex.blogspot.com/2012/07/creating-walls-that-follow-site.html**
Reference: Revit Architecture 2010-11.zip
Reference: hwk1 GSG_Revit_Architecture_2010.pdf

Homework 1: BIM Overview: Introduction to Revit Architecture

January 24

Lecture: Understanding Families
Family, type, instance
System: walls (layer, stack, curtain wall), roofs, floors, stairs
Loadable: including windows, doors, conceptual mass, templates, and sheets
In-place: wall example (Home … Component … Model In-Place) versus Massing (only intro)

Curtain wall mullions (Mullions – create profile, Home Mullion, and then assign the mullion the curtain wall.)

Homework 1 due (part 1 – building drawings)

Read: Chapter 12: Advanced Topics: the section on Families, pp. 345 – 358 (Krygiel, Demchak, and Dzambazova)

Reference: **http://therevitcomplex.blogspot.com/2012/07/creating-walls-that-follow-site.html**
Reference: Revit Architecture 2010-11.zip
Reference: hwk1 GSG_Revit_Architecture_2010.pdf

January 31

Lecture: Creating Parametric Families
Family editor: templates, parametrics, light fixture, simple door, parametric box, parametric door, visibility
Concepts: working planes, reference planes, formulas, locking to existing geometry, annotation families, 3d commands

Homework 1 due (part 2)
Homework 2: Introduction to Families

February 7

Lecture: More on Families.
Guest lecturer: Shobhit Baadkar, Titan AEC.
Concepts: working planes, reference planes, formulas, locking to existing geometry, visibility parameter, nested components, arrays in families, line based arrays, annotation families
Line based, nested, formulas, shared parameters, reporting parameters, arrays
Nested families. Parameters in adaptive components work in the mass, but don't carry through to the Revit project file. They must be re-linked/reassigned in that little box (for example, like the little box in the right side of the visibility column).

Read: Chapter 2: BIM Tools and Parametric Modeling, pp. 25 – 64 (Eastman, et. al.)

Homework 2 due
Homework 3: BIM 2d / 3d coordination

February 14

Lecture: Viewing Techniques, Interoperability
Views, Manage, Styles, review Graphic Overrides, cutting planes, section box
Import, Export, Save … As
AutoCAD 2d/3d, Rhino, gbXML, dxf, stl, jpg
IFC and OpenBIM
More on families if there is time.

Read: Chapter 7: Building Information Exchange Requirements, pp. 153 – 170 (Smith and Tardiff)
Read: openBIM and COBie.zip (on Blackboard)
Construction Operations Building Information Exchange (COBie) | Whole Building Design Guide.pdf
openBIM_intro-2012.pdf
openBIM_workflow-2012.pdf

Homework 3 in progress

February 21

Lecture: BIM as a Database
Connection between schedules, layered walls, materials, and detailing
Detailing and annotation
- 2d is still important
- Annotate (Dimension, Details, Text, Tag, Material),
- Region, masking region (make outside edge invisible in sketch mode)
- Component
- Detail component (Metal … steel joist – K joist side) (Wood – glue lam) (General – break line)
- Repeating detail brick

Schedules, sheet index, schedules with images: door and window
Material Tag schedule
- Section of complex wall; structure, material, material description
- Annotate … Material Tag (interior finish) – most are initially blank
- Schedule: Material Take-off (Family, Type, Material Name, Material Description)
- Change in either of three places (schedule is easiest) and all three are updated

Visibility; graphics versus isolate; temporary versus printing; crop boxes, section boxes
Massing, in-place component

Read: Chapter 5: BIM for Architects and Engineers, pp. 193 – 262 (pp. 149 – 206) (Eastman, et. al.)

Homework 3 due
Homework 4: Scheduling and Detailing

February 28 **Lecture**: Introduction to Rendering and Animation
Camera: 1/2/3 point; eye/target/clip, finding the camera
Rendering: perspectives, lighting, materials, decals, rendering options, turn on portals for better daylighting (increases rendering time,); use with "sun."
Cloud rendering, false color illumination

Animation: solar, walkthrough

Homework 4 due
Homework 5: Rendering and Animation

CONCEPTUAL MODELING, PARAMETRICS, AND ADAPTIVE COMPONENTS

March 7 **Lecture**: Conceptual Modeler and Parametric Pattern Based Curtain Walls
Review curtain wall family (combination system and nested loadable family)
Conceptual modeler, remember:
- lofting profiles will curve; to facet, Create Form for each pair of profiles
- Dimension the profile sketch (inside the edit mass) (equal first, then long dimension), then add the parameter.
- One can lock profiles. Creating objects on reference planes.
- Can add parameter for example by changing the temporary height to a label (there is a tiny icon next to the dimension line that lets one do this)
- Drawing a series of lines to make the splits on a face.

Pattern based curtain wall families with parameters

References:
- Revit Architecture 2010 conceptual modeler.pdf
- Revit Architecture 2010 conceptual modeler videos
  - 2-3 Parametric Mass.mov
  - 2-4_Adaptive_Components_Mass.mov
  - 3-2 Components Pavilion.mov
  - 3-3 Components Tower.mov
  - 3-4.3_Adaptive_Component_Panel.mov

Homework 5 due
Homework 6: Introduction to the Conceptual Modeler

Read: *Mimic a Master Builder: A Tribute to Felix Candela*, Alfredo Medina, pp. 10-15 (thin shell concrete forms AW201205lr.pdf

Reference: Marcello Sgambelluri mass family handout.pdf

March 14 **Lecture**: Introduction to Parametric Adaptive Components
Pattern based curtain walls versus adaptive components
AU adaptive components example for class
Armature Family.rfa
AU adaptive components.pdf
AU parametrics laid bare copy.pdf
Exercise One.Start.rfa
Exercise Three.Start.rfa
Exercise Two.Start.rfa
http://buildz.blogspot.com/2010/09/making-dinosaur-bone.html
TransAssembly-Zach dino.rfa

Read: Chapter 2: BIM Tools and Parametric Modeling, pp. 31 – 98 (pp. 25 – 64) (Eastman, et. al)

References:
Marcello Sgambelluri mass family handout.pdf
http://therevitkid.blogspot.com/2013/07/revit-tutorial-massing-and-adaptive.html
Au Bon Panel: Baking Your Own Adaptive Components and Panels with Autodesk® Revit® Architecture (Robert Manna – Burt Hill, Zach Kron – Autodesk)

Homework 6 due
Hint: you have nothing else to do over Spring Break, you can start homework 7, or better yet, Final Project, part 1, early.

SPRING BREAK – MARCH 17 – 21

March 28 **Lecture**: Parametric Adaptive Components
Guest Lecturer: Marcello Sgambelluri, John Martin and Associates
Adaptive components with parameters, repeat copy.
Intersect method.
Instance versus type parameters

Skim: *McGraw Hill Smart BIM Report 2009.pdf* (on Blackboard)
Skim: mhc_green_bim_smartmarket_report_(2010)_rfinal0.pdf (on Blackboard)

Homework 7: The Conceptual Modeler and Adaptive Components

BIM ANALYTICS

April 4 **Lecture**: BIM Analytics
Vasari massing, solar radiation, wind rose, wind tunnel, energy
MEP (heating and cooling loads)
If time – introduction to Green Building Studio and Project Falcon

Homework 7 due
Homework 8: BIM + Sustainable Design

Read: Chapter 5: Sustainable BIM: Building Form, pp. 127 - 164 (Krygiel and Nies)
OR
Read: Chapter 6: Sustainable BIM: Building Systems, pp. 165-208 (Krygiel and Nies)

April 11 **Lecture**: BIM in the Profession

Homework 8 due
Final Project

April 18 **Lecture**: BIM Customization
Guest lecturer: Troy Gates, Mazzetti

April 25 **Lecture**: Interference Checking, Phasing, and Construction Sequencing (design options?)
What is 2d? 3d? 4d? 5d? 6d?
http://bimandipd.blogspot.com/2008/02/bim-and-2d-3d-4d-5d-6d.html
2D - Something with 2 dimensions (flat)
3D - Something seen in 3 dimensions e.g. width, length and height.
4D - Adding the aspect of time to a project (phasing/sequencing)
5D - Adding the aspect of cost to a project (cost estimating)
6D - The aspect of life cycle management (owner/FM)
Revit: interference checking and phasing
Navisworks Manage, Autodesk Glue

Read: Chapter 1: BIM and Construction Management, pp. 1-35 (Hardin)

May 2 **Lecture**: class synthesis

Final Project, Part 1 due

May 9 **Final Project, Part 2 due** at 11 am

ACCREDITATION STATEMENT

The USC School of Architecture's five year BARCH degree and the two year M.ARCH degree are accredited professional architectural degree programs. All students can access and review the NAAB Conditions of Accreditation (including the Student Performance Criteria) on the NAAB Website, http://www.naab.org/accreditation/2009_Conditions.aspx .

The Master of Landscape Architecture degree program (for USC's +3 students with no prior design education, and our +2 for students admitted with advanced standing) is currently in "Candidacy Status" for accreditation by the Landscape Architecture Accreditation Board. All students can access and review the LAAB accreditation standards/process at http://www.asla.org/Education.aspx .

REHABILITATION ACT (LAB 504) AND THE AMERICANS WITH DISABILITIES ACT (ADA)

The University of Southern California is committed to full compliance with the Rehabilitation Act (Lab 504) and the Americans with Disabilities Act (ADA). As part of the implementation of this law, the University will continue to provide reasonable accommodation of academically qualified students with disabilities so those student can participate fully in the University's educational programs and activities. Although USC is not required by law to change the "fundamental nature of essential curricular components of its programs in order to accommodate the needs of disabled students," the University will provide reasonable academic accommodations. The specific responsibility of the University administration and all faculty serving in a teaching capacity is to ensure the University's compliance with this policy. The general definition of a student with a disability is any person who has "a physical or mental impairment which substantially limits one or more of such person's major life activities," and any person who has "a history of, or is regarded as having, such an impairment." Reasonable academic and physical accommodations include but are not limited to: extended time on examinations; substitution of similar or related work for a non-fundamental program requirement; time extensions on papers and projects; special testing procedures; advance notice regarding book list for visually impaired and some learning disabled students; use of academic aides in the classroom such as note takers and sign language interpreters; early advisement and assistance with registration; accessibility for students who use wheelchairs and those with mobility impairments; and need for special classroom furniture or special equipment in the classroom.

Obtaining Accommodations

Physical Accommodations

Students with physical disabilities should contact Disability Services and Programs (DSP) prior to or during the first week of class attendance or as early in the semester as possible. The office will work with classroom scheduling, the course instructors and their departments, and the students to arrange for reasonable accommodations.

Academic Accommodations

Students seeking academic accommodations due to a physical or learning disability should make the request to the course instructor prior to or during the first week of class attendance, as well as registering with DSP as early in the semester as possible. Course instructors should require that a student present verification of documentation when academic accommodations are being requested. For assistance in how to provide reasonable accommodations for a particular disability, course instructors are encouraged to consult with Disability Services and Programs (DSP). Students requesting academic accommodations who do not have DSP documentation should be referred to that office.

Summary

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. **Please be sure the letter is delivered to Karen Kensek by the end of the second week of class**. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday.

Disability Services & Programs: (213) 740-0776

STATEMENT ON ACADEMIC INTEGRITY

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A:

http://www.usc.edu/dept/publications/SCAMPUS/gov/

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at

http://www.usc.edu/student-affairs/SJACS/

Here is a website link for assistance in avoiding plagiarism:

http://www.usc.edu/student-affairs/student-conduct/ug_plag.htm

Specifically for graduate students, but also useful for undergraduate students:

http://www.usc.edu/student-affairs/student-conduct/grad_ai.htm

RELIGIOUS HOLIDAYS

The University of Southern California recognizes the diversity of our community and the potential for conflicts involving academic activities and personal religious observation. The University provides a guide to such observances for reference and suggests that any concerns about lack of attendance or inability to participate fully in the course activity be fully aired at the start of the term. As a general principle students should be excused from class for these events if properly documented and if provisions can be made to accommodate the absence and make up the lost work. Constraints on participation that conflict with adequate participation in the course and cannot be resolved to the satisfaction of the faculty and the student need to be identified **prior to the drop/add date for registration**. After the drop/add date the University and the School of Architecture shall be the sole arbiter of what constitutes appropriate attendance and participation in a given course.

Please contact Karen Kensek at kensek@usc.edu by the end of the second week of class if you anticipate conflicts with religious holidays including missing lectures, inability to finish homework assignments on-time, or other items that may hinder your work in this class.

2010 IMPERATIVE STATEMENT

The design should engage the environment in a way that dramatically reduces or eliminates the need for fossil fuel.