ARCH 205BL: ARCHITECTURE FOR ENGINEERS
The Process and Communication of Building Design:
Physical building systems for structure, enclosure, space,
ordering and planning.

Instructor/Coordinator: Mina M. Chow, AIA, NCARB
MON/WED: 2:00pm-4:50pm
Office Hours: M W by appointment

This is the second semester for a foundation studio course in an interdisciplinary program with the
School of Engineering that first was established in the 1970's. This three-year interdisciplinary
program is based in the School of Civil and Environmental Engineering Studies. This program will
familiarize the student with architecture, landscape architecture, planning, structural, mechanical,
and electrical engineering and the related issues that contribute to the built environment for our
society. It introduces the process of coordinating all of these aspects for the engineering student.

This course will continue to develop the student's comprehension on the nature of contextual and
organizational principles that order our surroundings, and to create an appreciation and
understanding of how and why these systems are established. The objective is to expose the
student to current issues related to design in architecture, and to teach the intrinsic nature of
architecture developed through principles based on the design & construction process. These
topics are indications of the various value systems that come into play in the contemporary field of
architecture. Understanding this and becoming aware that design is a synthetic process that is a
balance of many concerns is a major objective of the course.

This course will explore contextual research and analysis introduced in ARCH 205aL in more depth,
and architectural program and space planning for a modest, but spatially complex building within an
urban context. These projects will continue to emphasize the design process from the initial design
concept to the final building proposition. Though precedent studies, design exercises, lectures, and
critiques; emphasis is placed on design as a creative, conceptually driven, iterative process; all
working within the defined limits of project budgets and schedules.

DESIGN SEQUENCE
The studio will begin with two brief exercises, a precedent study followed by a longer project divided
into (2) parts to conclude the semester. The latter will involve the design of a small museum annex
and support spaces. The semester's schedule is as follows:

A1_Path, Place & Pavilion: Explore ways in which spaces may be defined to express ideas
through site forces and experiential qualities.

A2_Artist's Retreat: Design an artist's retreat with a self-defined program, spatial sequence and
narrative.

A3_Precedent Study: The Precedent Study will focus on museums. The study will involve the
research, analyze, and critique of a built or proposed museum project. The final product will include
accurate plans, sections and models in addition to analytical diagrams and models that decipher
the particular aspects of each project.

A4: Museum Annex: Site/Program Analysis & Synthesis: Site analysis will investigate the
area where the "Museum Project" is to be located. Students will produce a group site model in
addition to recording critical information that best describes the site and surrounding area. Program analysis will explore the spatial and organizational qualities of a museum. After compiling a body of research and analysis about the site and program, synthesize on multi-media models to explore several concepts derived from your insights.

A5_Museum Annex: Project Design & Development: This portion of the project will involve the detailed design and development of the museum project. Each proposition will address a variety of topics ranging from urbanism to tectonic and structural issues.

Expression of ideas and values present in physical form are explored through observation, analysis, transformation, and synthesis. Students develop and document projects using a variety of means, including model making, REVIT or OTHER software programs, sketching, mechanical drawing, and photography. Project craft and execution are emphasized.

In addition, the studio will address the important role that architects and engineers play in the sustainability of our environment. We will discuss the 2030 Challenge in how design should engage the environment in a way that dramatically reduces or eliminates the need for fossil fuel and find applications to the design of our structures.

In summary, the lectures, discussions and design problems will begin to reveal how architects and design professionals think, and what they must think about when designing a building or a space.

COURSE OBJECTIVES:

A) Apply two and three-dimensional formal design principles and theories to simple design problems, investigating the intrinsic properties of materials applied in structural and conceptual expression.

B) Develop alternative solutions to a given design problem through the use of iterative design process.

C) Employ fundamental theories of visual perception to create spatial unity, dialog, contrast, balance, tension, rhythm, and harmony in design projects.

D) Use research, critical thinking, and analytical skills to find and reveal the cultural values embedded in the built environment and artifacts created by a society.

E) Through observation, analysis, synthesis and abstraction, create design projects that reveal the essential meanings of their subjects.

F) Continue to employ knowledge of ordering principals learned to organize a design solution in planning, spatial experience and detail that clearly reflects a design concept.

G) Demonstrate mastery and development of basic presentation craft and organization though verbal, graphic, and model building means.

H) Communicate a comprehensive design concept using verbal, graphic and model making skills.

COURSE CONTENT:

Analysis:

1. Research: Students will perform research at libraries and/or using scholarly online portals, and by visiting significant works of architecture.
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2. Observation: The relationship of the whole environment to its parts, especially as related to the structure of building elements.
3. Formal Analysis: Continuing development of two and three-dimensional analytical techniques.
4. Contextual Analysis: Study of factors effecting the perception and meaning of environments.
5. Problem Analysis: Investigating constraints and opportunities presented by a variety of design problems.
6. Application: Synthesis of the above critical process into coherent design solutions that creatively address issues revealed through analysis.

Design principles:

1. Primary Elements of Form: What they are and how they relate to the design of structures.
2. Form Generation: How forms are generated and used in the design process.
3. Context and meaning: The interrelationships between an object, its environment, and meaning.
4. Scale: How size and proportion affect meaning.

Organizational principles:

1. Proportion: Ancient and modern systems used to organize works of architecture and art. How proportional systems are used to organize designs.
3. Balance and Asymmetry: How balance is achieved between design elements in asymmetrical relationships.
4. Figure/Ground: How figure and ground interact to create and define spatial relationships.
5. Solid/ Void: Solid and void interrelationships and their effect on meaning and experience.

Design realization:

1. Synthesis: Integration and resolution of disparate and conflicting design issues into clear, well-organized, aesthetically and structurally sound solutions.
2. Representation: Ability to employ appropriate representational media, including computer technology, to convey essential formal elements at each stage for the programming and design process.

COURSE OBJECTIVES WILL BE ACHIEVED THROUGH THE FOLLOWING:

1. Design studio assignments.
2. Lectures, active-learning presentations.
3. Class discussions, critiques and reviews.
4. Fieldtrips.
5. Final project.

Mina Chow, AIA, NCARB Lecturer
ASSIGNMENTS/GRADING:

15% (1) Path, Place & Pavilion
15% (1) Artist’s Retreat
15% (1) Museum Precedent
40% (1) Final Project

(10%) Research & Site Analysis
(20%) Design Presentation

15% Attendance and Participation for studio lectures, discussions and fieldtrips

REQUIRED DRAWING EQUIPMENT:
Autodesk REVIT software or equivalent 3D modeling program is required.
(Note: Autodesk REVIT may be downloaded FREE at: http://students.autodesk.com)

REFERENCES:
Readings will be from the following texts or provided in advance from additional texts on:
https://blackboard.usc.edu.

0262680025.

RECOMMENDED:
2004.

CLASS SCHEDULE (SUBJECT TO CHANGE - PLEASE STAY INFORMED):

Week 1
MON JAN 7
INTRODUCTION & COURSE HANDOUTS
LECTURE: “Path, Place & Pavilion” (Mina M. Chow)
Handout/Review “Path, Place & Pavilion” Assignment
Homework: Build 2 site study models (See axonometric diagram.)
Collect images about the experience(s) for your design.

WED JAN 9
“Path, Place & Pavilion”
LECTURE: “Site & Parti” (Mina M. Chow)
DESK CRITS: Sketch design and parti studies.
Homework: Begin carving/building designs into study models.

Week 2
MON JAN 14
“Path, Place & Pavilion”
DESK CRITS: Work on site study models/ Begin plans & sections.
Homework: Continue development of parts/ Begin dwgs at 1/8” plan & section Complete Line Weights & Depth Exercise.
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**WED Jan 16**

"Path, Place & Pavilion"

DESK CRITS: Review Part study models. Lineweights & Depth exercise and final drawing requirements.

Homework: Finalize design part/Refine plans & sections.

**Week 3**

**MON Jan 21**

Martin Luther King Holiday — NO CLASS!

**WED JAN 23**

"Path, Place & Pavilion"

DESK CRITS: Refine Concepts & Details.

Homework: Complete Final Model and Drawings

**JAN 25**

LAST DAY TO REGISTER/ADD/DROP CLASSES

**Week 4**

**MON JAN 28**

"Path, Place & Pavilion" DUE

Handout "Artist's Retreat" Assignment

DESK CRITS/CLASS DISCUSSION: "Retreats"
Homework: Part I: Build cardboard site model.

Write Part II: Artist Narrative.

**WED JAN 30**

Fieldtrip: OFFICE TOUR

Meet at 2:30pm at:

Enclos Studio
1035 S. Grand Ave, Suite 101
Los Angeles, CA 90015

**Week 5**

**MON FEB 4**

"Artist's Retreat"

DESK CRITS/CLASS DISCUSSION: "Architectural Program"

Homework: Develop Part II: Artist Narrative.

Diagram Part(s).

Build 3 smaller study models based on a parti sequence and program

**WED FEB 5**

"Artist's Retreat"

DESK CRITS/CLASS DISCUSSION: "Spatial Sequence & Narrative"

Homework: Based on desk crits, continue working on study models developing parti sequence and program.

**Week 6**

**WED FEB 11**

"Artist's Retreat"

DESK CRITS/CLASS DISCUSSION: "Spatial Volume and Details."

Refine study models.

Homework: Develop your study model(s). Start drafting plans and sections.

**WED FEB 13**

"Artist's Retreat"

CLASS EXERCISE: Perspective Drawings and Shading.

Homework: Develop your study model(s). Start Final Model and Dwgs.

**Week 7**

**MON FEB 18**

President's Day — NO CLASS!
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WED  
FEB 20  
"Artist's Retreat"  
DESK CRITS: Continue developing study model(s) and FINAL presentation.  
Homework: Continue Final Model and Final Drawings.

Week 8  
MON  
FEB 25  
"Artist's Retreat"  
DESK CRITS: Continue developing study model(s) and FINAL presentation.

WED  
FEB 27  
"Artist's Retreat"  
DESK CRITS: Continue developing study model(s) and FINAL presentation.

Week 9  
MON  
MAR 4  
"Artist's Retreat" DUE  
Handout "precedent Museum" Assignment  
Homework: "precedent Museum" Research

WED  
MAR 6  
"precedent Museum"  
DESK CRITS

Mar 10-17  
Spring Recess

Week 10  
MON  
MAR 18  
"precedent Museum"  
DESK CRITS

WED  
MAR 20  
Fieldtrip: CONSTRUCTION SITE TOUR  
Meet at 2:45pm at:  
Los Angeles Stadium and Entertainment District (LAStED)  
Inglewood, CA 90304  
Meet Location: TBD  

HOMEWORK: Complete Final presentation for boards.

Week 11  
MON  
MAR 25  
"precedent Museum" Final Presentation DUE  
HOMEWORK: Team Site Analysis RESEARCH.  
(Handout: "Museum Annex")  
HOMEWORK: Team Site Analysis RESEARCH.

WED  
MAR 27  
"Museum Annex: Site Analysis"  
Meet at 2:15pm at: IN CLASS  
Natural History Museum Site  
900 Exposition Blvd  
Los Angeles, CA 90007  

HOMEWORK: Team Site Analysis Research.

Week 12  
MON  
APR 1  
"Museum Annex: Site Analysis"  
CLASS: TEAM PROCESS RESEARCH Discussion  
HOMEWORK: Team Site Analysis

WED  
APR 3  
"Museum Annex: Site Analysis"  
HOMEWORK: BUILD group site model.  
Team Site Analysis.
PLEASE NOTE: LAST DAY TO DROP A CLASS WITH A MARK OF "W."

**Week 13**

**MON**
**APR 8**

**“Museum Annex: Site Analysis”**
IN CLASS: Site Analysis Presentation
HOMEWORK: Finish group site model.
- Begin sketching/diagramming parti and concepts.
- Build (3) models based on parti: structure, sequence, program.

**WED**
**APR 10**

**“Museum Annex: Butterfly Pavilion”**
HOMEWORK: Develop (3) models based on parti: structure, sequence, program.

**Week 14**

**MON**
**APR 15**

**“Museum Annex: Butterfly Pavilion”**
HOMEWORK: Develop (3) models based on parti: structure, sequence, program.

**WED**
**APR 17**

**“Museum Annex: Butterfly Pavilion”**

**Week 15**

**MON**
**APR 22**

**“Museum Annex: Butterfly Pavilion”**

**WED**
**APR 24**

**“Museum Annex: Butterfly Pavilion”**
LAST DAY OF CLASS.

**Week 16**

**MON**
**APR 30**

**“Museum Annex: Butterfly Pavilion”**
Study Week.

**WED**
**MAY 2**

**“Museum Annex: Butterfly Pavilion”**
Study Week.

**Week 17**

**MON**
**MAY 6**

**FINAL REVIEW: “Museum Annex: Butterfly Pavilion”**
2:00pm-4:00pm

**WED**
**MAY 8**

Digital and Hardcopy PORTFOLIO DUE @ 5:00PM