

TTU CoA Fall10 Comprehensive Design Studio SYLLABUS ARCH5901

Course Instructors

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Course Information

ARCH 5901, Comprehensive Design Studio

Credits: 9 semester credit hours.

Course time: MWF 8:30-12:20pm, TuTh 2:00-4:50pm

Course Description

2010-2011 TTU Graduate Catalog Course Description

5901. Comprehensive Design Studio (9:0:18). Design of a comprehensive architectural projects based on a building program and site that includes an understanding of structural and environmental systems, building assemblies, and principles of sustainability.

The Comprehensive Design Studio is the threshold for the graduate professional program in architecture. Without successfully completing the Comprehensive Design Studio access to the topical offerings of the professional program is not available. The Comprehensive Design Studio emphasizes the criteria for comprehensive design required by the National Architecture Accreditation Board.

2009 NAAB Student Performance Criteria

B.6 Comprehensive design: Ability to produce a comprehensive architectural project that demonstrates each student's capacity to make design decisions across scales while integrating the following Student Performance Criteria:

A.2. Design Thinking Skills: Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards.

A.4. Technical Documentation: Ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.

A.5. Investigative Skills: Ability to gather, assess, record, apply, and comparatively evaluate relevant information within architectural coursework and design processes.

A.8. Ordering Systems Skills: Understanding of the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.

A.9. Historical Traditions and Global Culture: Understanding of parallel and divergent canons and traditions of architecture, landscape and urban design including examples of indigenous, vernacular, local, regional, national settings from the Eastern, Western, Northern, and Southern hemispheres in terms of their climatic, ecological, technological, socioeconomic, public health, and cultural factors.

B.2. Accessibility: Ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.

B.3. Sustainability: Ability to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations through means such as carbon-neutral design, bioclimatic design, and energy efficiency.

B.4. Site Design: Ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of a project design.

B.5. Life Safety: Ability to apply the basic principles of life-safety systems with an emphasis on egress.

B.8. Environmental Systems: Understanding the principles of environmental systems' design such as embodied energy, active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, and acoustics; including the use of appropriate performance assessment tools.

B.9. Structural Systems: Understanding of the basic principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems.

B.10 Building Envelope Systems: *Understanding* of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.

B.11 Building Service Systems: *Understanding* of the basic principles and appropriate application and performance of building service systems such as plumbing, electrical, vertical transportation, security, and fire protection systems

The underlying intent of the studio is to fully integrate programmatic, technical and aesthetic concepts throughout the full range of design activity from schematic proposal to design development to contract documents. Integration requires a cyclical and exploratory design process, which valorizes the mutual solution of competing concepts. For example, just having a plausible structural system without fully engaging the other systems and conceptual issues involved is not adequate for completing the studio successfully. Success will require a sincere effort to integrate the various elements of the architectural solution.

Student Learning Outcomes

Upon completion of this course students will be able to construct, present, and defend advanced comprehensive architectural design solutions that integrate the following criteria:

- **Form and Space:** Defined by systems of structure, enclosure, and circulation, organized by hierarchical patterns, articulated by the qualities of shape, color and texture, and determined by the principles of scale, and theories of proportion, aesthetics and compositional arrangement.
- **Technology:** Methods of construction, properties of materials, building systems, sustainable design, and mechanical systems including plumbing, electrical, lighting, and HVAC.
- **Program:** The accommodation of human physical and psychological needs, planning for specific activities particular to building typology, identifying spatial relationships, allocation of spatial sizes and requirements, and providing for life safety and accessibility.
- **Context:** Sensitivity to social precedents both physical and psychological. Consideration of economic factors, urban patterns, regional issues, community needs and aspirations, and culturally diverse attitudes.
- **Site & Environment:** Design for ecological preservation considering natural environment, climate, solar exposure, wind temperature, and precipitation. Minimize negative environmental impact through sustainable design strategies.
- **Design Process:** The intellectual activity of conceptualizing, analyzing, and demonstrating architectural form and space using creative, critical, and logical thinking skills, hand drawing, three-dimensional hand-built models, and electronic media.
- **Precedent & Evidence Based Design:** Design solutions are to be informed by established principles and noteworthy examples found in professional and academic works. Evidence based Design emphasizes the importance of using credible data in order to influence the design process.

Assessment of Learning Outcomes

All the criteria listed above will be assessed and evaluated at each of the three main studio reviews.

Methodology

The studio will be structured to represent three phases of design: schematic, design development, and contract document. All the issues embraced by the NAAB criteria must be engaged with each phase. In essence, just like practice, the building will be designed three times with greater specificity with each pass. There will be three reviews—one after each phase of design. Your work will be reviewed by professionals who will judge your work as much for its inventiveness as for its technicality. Just like practice, you will be working with a partner. Projects will be completed in teams of two with equal responsibility for the general aesthetic and technical decisions. The program employed as a vehicle for the course allows each student to focus some individual attention to a particular part of the building; but, it is a priority of the client that the building works well as a whole.

Studio structure

The studio meets every day. It will be run like an office. Four unexcused absences are grounds for termination. Coming to studio late or leaving early will not be tolerated and will also be grounds for termination. If you leave the studio during the work time you must inform one of the studio instructors. The work time is just for that—work. As the studio will be structured around teams of two and as the work of the studio will demand the kind of sharing of technical knowledge that takes place in an office all forms of music devices are prohibited during the work time hours. Students will be evaluated on their ability to perform in a professional manner. Unprofessional behavior can result in a loss of a full letter grade for the semester. As this studio is a nine hour course, it will be the hardest studio that you have ever taken—make adjustments now. On the other hand, this studio is intended to put you in a position to be very competitive for employment in a time when employment is difficult in our profession.

Teams

Design teams will work together and should be organized within the studio to maximize interaction between partners. Collaboration within teams and across studios is paramount to success. Failure to collaborate will result in a grade deduction regardless of project competency.

Project & Assignments

Each studio section will distribute individual project statements, programs, and site information which will be used to develop the semester long project.

It is the responsibility of the student to keep, gather, and maintain all assignments, handouts, links, books, articles, references, web-materials, images, lectures, comments and communications, etc. from each studio section. All required materials must be prepared by stated due dates and times.

Research / Design Booklet

All the research data-information collected during all design phases must be archived in a physical format (bound folder with sketches, copies, printouts, writings, thoughts, etc.) and in digital-format (bookmarks, files organized in folders and sub-folders on a CD-R/DVD).

The research to be accumulated is therefore a continuously in progress part of your physical / digital project. In order to have control of this information, it must be documented. You are asked to gradually produce the **Research / Design Booklet** in an 11" x 17" bound format, with all research and design presentation information. Its pages will correspond to your virtual **Digital Booklet**. This may require scanning of some information (text and image photocopies).

Digital Booklet (Digital files on CD/DVD)

Every student is responsible for his/her own digital portfolio on a CD/DVD including the work of the entire semester. Each phase must be well organized in ordered folders and sub-folders. Constant up-dates and regular back-ups of your files are necessary. All files of research and design process are to be organized in folder hierarchies on the CD/DVD.

The complete **Digital Booklet** with all semester's files needs to be turned in with a copy of the **Research / Design Booklet** before the end of the semester.

Readings & Viewings

Readings and Viewings concerned with technical issues, architectural theory, and culture will play a significant role in the intellectual atmosphere of the studio. Practical issues have intellectual dimensions. Each student is responsible for all assigned readings and viewings. Just like in practice, you are responsible for them as soon as they are assigned. Unless you engage the intellectual issues embedded in the execution of the project you will not be successful at integrating its constituent elements. This studio will be detail-intense. The art of detailing is an exercise in judgment inspired by intellect and tempered by care. Form is knowledge. Well designed connections make well designed elements, which make well designed connections.

Web-Bookmarks

During your research you will visit a lot of Web-Sites. You are asked to collect all the researched bookmarks in appropriate folders in your internet browser. These need to be copied into a folder on the **Digital Booklet** and also printed out as a list of links, to be included in the **Research / Design Booklet**.

Bibliography

Compile and continuously update a written **Bibliography** of the books you consult during the semester. Include the Course Reading List and Studio references, adding titles as required. Include your **Bibliography** in your **Research / Design Booklet** and **Digital Booklet**.

Plagiarism

Any student failing to cite referenced works, or the work of fellow students, is guilty of plagiarism and will be subject to disciplinary action. Flagrant or repeated violations by the student will be subject to disciplinary action through the office of the Associate Dean for Academics. Penalties for plagiarism include dismissal from the course, and potential for expulsion from the college. See the **TTU Student Handbook 2010-2011**

Criticism

Students are expected to commit to exploration and representation of a completed thought for each studio, with adequate graphical documentation to back up ideas. Superficial or minor changes to the project, or verbal descriptions, will not be critiqued. Management of criticisms is the responsibility of the student. Incorporation of constructive criticisms and delivery of a credible design scheme must take place within the given time frame. Criticisms from the instructor and other classmates should be received as a critique of the studio work and/or process, not as a personal attack.

Evaluation & Grading

Grading is a certification that the student has clearly demonstrated a level of expertise as required in each design project or exercise.

- **A (90-100)** Indicates that the level of expertise is superior (excellent work).
- **B (80-89)** Indicates the project task or problem is clearly resolved but lacks in-depth study or resolution in one or more areas.
- **C (70-79)** Indicates the level of work is average work relative to peers. (A minimum grade of 'C' is required to proceed to the next design studio)
- **D (60-69)** Indicates the level of expertise is minimal and weak.
- **F (0-59)** Indicates a failure to respond adequately.

Retention of Student Work

The College of Architecture reserves the right to retain, exhibit, and reproduce work submitted by students. Work submitted for grade is the property of the college and remains as such until it is returned to the student.

Computer

Students must provide and maintain their own desktop or laptop computer(s). Computers should be up and running prior to the onset of studio, and must be available for use through the end of each session.

While the minimum specifications given on the college website are satisfactory for most courses, the level of detail to be attained in this studio may test those boundaries. If you are operating on a system designed to minimum specifications, you may find yourself waiting at your computer more often than working towards the end of the semester.

Technical difficulties, viruses, crashes, server or print bureau problems, corrupted files, software agreements lapses, and other issues leading to inaccessibility/inoperability of the computer, software, or files will not be accepted as excuses for lack of production.

Software

Software such as AutoCAD, Adobe Design Standard (Photoshop, Illustrator, Acrobat, InDesign), 3D Studio, Form-Z, Rhino, Maya, will be used as design tools for all output: research, analysis, diagrams, site plan, floor plans, sections, elevations, 3D modeling, renderings, etc.

Software should be used intelligently to represent the studio work in an exemplary manner. The use of software the student does not maintain proficiency in will not be considered as an excuse for late or incomplete work.

Over the course of the semester, it may be necessary to acquire additional software in order to develop projects to their fullest potential. Students should embrace the use of new technologies in their process in order to expand individual skill sets as well as possibilities within the design process.

Architecture Building Policies

Students must comply with all requirements as posted on the college web site, and are responsible for maintaining awareness for all policy changes.

ADA Accommodations

Any student who, because of a disability, may require special arrangements, in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall or 806-742-2405.

Class Attendance Policy

From the TTU Student Handbook 2010-2011

I. Religious Holy Day Absences

According to the 2009-2010 University Catalog, regarding notification to faculty, a student may be excused from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused for this purpose may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused. According to OP 34.19, a student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence.

J. Class Attendance

OP 34.04, Academic Regulations Concerning Student Performance, and the University Catalog provide complete information regarding class attendance and reporting student illness and emergencies. Responsibility for class attendance rests with the student. The instructor determines the effect of absences on grades, consistent with university policy, for excused and unexcused absences. In case of an illness that will require absence from class for more than one week, the student should notify his/her academic dean. In case of absences because of a brief illness, the student should inform the instructor directly.

K. Student Absence due to Sponsorship of Student Activities and Off-Campus Trips

According to the University Catalog, faculty, department chairpersons, directors, or others responsible for a student representing the university on officially approved trips should notify the student's instructors of the departure and return schedules in advance of the trip. The instructor so notified must not penalize the student, although the student is responsible for material missed. Students absent because of university business must

be given the same privileges as other students (e.g., if other students are given the choice of dropping one of four tests, then students with excused absences must be given the same privilege). According to OP 34.06, students will be responsible for making their own individual arrangements with instructors for class work missed while participating in an off-campus trip.

CoA Attendance Policy: The College considers four (4) unexcused absences in a course excessive and grounds for dropping the student from the course.

Fall 2010 Academic Calender

First Class Day: August 26

Holidays: Sept. 6 Labor Day, Oct. 11-12 Fall Break, Nov. 24-26 Thanksgiving Break

Last day of Classes: December 8 (Final Review)

Course Reading List

The American Institute of Architects, Rush, Richard D., Ed; *THE BUILDINGS SYSTEMS INTEGRATION HANDBOOK*. New York: John Wiley and Sons, 1986

Birkstead, Jan, Ed; *RELATING ARCHITECTURE TO LANDSCAPE*. New York: Routledge, 1999

Clark, Roger H.; Pause, Michael; *PRECEDENTS IN ARCHITECTURE, Analytical Diagrams, Formative Ideas, and Partis, 3rd Edition*; Hoboken, New Jersey: John Wiley and Sons, 2005

Glass, Jacqueline; *ENCYCLOPEDIA OF ARCHITECTURAL TECHNOLOGY*. Chichester, West Sussex, UK: Wiley/Academy, John Wiley and Sons, 2002

Guise, David; *DESIGN AND TECHNOLOGY IN ARCHITECTURE*. New York: John Wiley and Sons, 1985

Hendricks, Julie; Malarkey, Brian; *THE KIRKSEY GUIDE TO A GREEN FACILITY*. Houston: Kirksey Architecture, 2006

Kieran, Stephen; Timberlake, James; *REFABRICATING ARCHITECTURE*. New York: McGraw-Hill, 2004

Killory, Christine; Davids, Rene; *DETAILS IN CONTEMPORARY ARCHITECTURE*. New York: As Built, Princeton Architectural Press, 2007

Moore, Fuller; *CONCEPTS AND PRACTICE OF ARCHITECTURAL DAYLIGHTING*. New York: Van Nostrand Reinhold, 1991

Moorhead, Stephen, Ed; *LANDSCAPE ARCHITECTURE*. Gloucester, Massachusetts: Rockport Publishers, Inc., 1997

Fernandez, John, *MATERIAL ARCHITECTURE: emergent materials for innovative and ecological construction*, Architectural Press 2006, Chapter 2: time and materials, pg.31-74;

Kieran and Timberlake, *REFABRICATING ARCHITECTURE: how manufacturing methodologies are poised to transform building construction*, McGraw Hill 2004.