**School of Architecture | Georgia Tech | Spring 20xx**

ARCH 2017: Architectural Design Studio III (5 credits)

Credit Hours: 5 credits (10 contact hours)

Days and hours of class: MF 1:10 – 5:10pm / W 1:10 – 3:10 (SoA events following)

Instructor: Name

Office location/Email address

Office Hours

**Course Description** (from the Catalog) Go to <http://www.catalog.gatech.edu/colleges/coa/architecture/#coursestext> to find the course description for the class.

Elementary design exercises focusing upon the compositional integration of building and site through the creative assimilation of programmatic, technical, and contextual requirements.

This studio concentrates on investigation, research and materiality. The studio is explicitly meant to understand research as part of the design process, instead of merely preceding it. The design process is based on a rigorous methodology that allows the student to understand historical examples not in the context of language and meaning but in the context of the continuing influence of materiality and geometry on concepts of architecture. The studio operates as a coordinated effort between several different instructors that each bring in their own expertise, and their own views of the methodology.

**Introduction**

One of the biggest unsolved problems in architecture is the age-old separation of the materialist, utilitarian and structural side of architecture on the one hand, and its aesthetic, sensuous and even beautiful side on the other. Most architects just mix them a bit in the hope they get away with the fact they haven’t even looked at the problem systematically. In that sense, good architecture schools (that’s us) do not teach “how to design buildings” (any average school can do that), but how to approach such fundamental problems in a systematic way. Not by giving answers, but by offering techniques of questioning. That means we are experimenting in a precise manner, by testing ideas, diagramming them, drawing conclusions, and preparing a range of steps forward before actually moving.

In the nineteenth century the division between both sides of architecture became most urgent in the division between two types of schools: a) the Polytechnique, a school that promoted a clear-headed approach reasoning along the lines of precise data while focusing on structure and materials, while the other school, b) the Beaux-Arts based itself on formal and aesthetic issues. The chasm between Polytechnique and Beaux-Arts is still visible in today’s architecture, for instance, in Norman Foster’s product-oriented, technological architecture and the late Zaha Hadid’s sculpturist architecture concentrating on dramatic effects of massing and lighting. Generally speaking, a Polytechnique architecture is crystalline, which follows rules of simple geometry, while a Beaux-Arts architecture often follows sinuous lines of curvature. However, this opposition can be traced to the oldest forms of architecture, as expressed in the battle between structure and ornament.

Traditionally, it was accepted that architecture should simply deal with that division, as we can see, for instance, in the work of the Roman architectural theorist Vitruvius or that of the Renaissance architect Alberti. Such a view meant to concentrate on structure first, and then, to make the abstract geometry more appealing and beautiful, add figures of beauty such as acanthus leaves, garlands of fruit or colorful mosaic.

In architectural history only a handful theories have been developed to overcome the division between these two domains. One of the best and most original theory was concocted by the German theorist Gottfried Semper who reasoned that textile had a central position in the historical development of architecture. According to him, the earliest buildings were woven and plaited from leaves, twigs and branches, flexible materials that by themselves are too weak to form structure, but when woven or knotted together may turn into strong structural entities. Doing so, the structure both stands and shows a particular pattern that looks lively and decorated. In that regard, Semper merged two separate worlds: that of stable, rigid tectonics and that of weak, curved textile strands. This we call “textile tectonics”: not the adding of curvy, pleasing elements to a dead structure, but the merging of weak elements into rigid structure.

**Techniques**

Such a historical view of architecture has an immediate effect on how to approach design itself. First of all, Semper’s theory involves procedural thinking: starting with flexible elements that then need to be teamed up. Such configurational procedures we call techniques. Second, it means such techniques are based on rules, similar to recipes and techniques in cooking: we start by preparing elements that by interaction team up and create structure. Thirdly, such a rule-based procedure is phased, it progresses stepwise and each step gathers more information and moves from a flexible state to a rigid one at the end.

All four studios will be procedural, rule-based and phased. Each studio will be based on its own types of flexible “textile” elements, with their own rule sets, and with their own types of results. But, because the four studios are based on similar techniques they will all contain research into the convergence of structure and ornament.

The four different techniques applied in the four studios are a) Tendrilling, based on the extravagant, plant-like architecture of Art Nouveau; b) Weaving, based on the intricate behavior of textile interlacing techniques of strands; c) Branching, based on the “wool-thread” technique invented by the German engineer Frei Otto; and d) Pleating, based on textile techniques used in fashion.

Obviously, no building (and we will design a rather large, multi-storey building) can be made of textile, so each studio will be phased in a way that the studies in textile techniques at the start of the studio are step by step transformed into rigid architectural materials. After thirteen weeks, at the end of the studio, it will be a spectacular sight to see how the early models have been transformed into large, recognizably architectural, structures.

Contrary to standard teaching techniques in architecture schools, we will not start by giving students the program and site. The studio will start with research, making models and diagramming. After the first phase (four weeks) the students will receive the site, and after phase 2 (seven weeks, midterm review) the program.

**Learning Objectives**

By the end of the semester:

* Students will understand architecture cannot be derived from external conditions such as urbanism, program, politics, economy or otherwise. Architecture plays by its own rules.
* Students will understand that design is a form of research in itself, driven by its own internal logic.
* Students will understand that design is not a question of language but of techniques.
* To equip students with techniques allowing them to function in a world of design that is more subjectified and dispersed than ever before. In short, students will be equipped for a culture where the formation of collective schools of design by the distribution of styles (“Modernism”, “Art Nouveau”, etc), the stabilizing notion of typology, and the authoritative power of the canonical buildings is growing smaller by the year.
* To be able to formulate a clear and credible architectural proposal that responds to an urban site and its surrounding context.
* To be able to handle a comprehensive program for an architectural project.
* To analyze, prepare and critique a program using research methods and the study of architectural precedents.
* To demonstrate a fundamental knowledge of construction systems and material assemblies through the making of appropriate diagrams, drawings, and models.

**Assignments and Assessments**

Though the studios are based on different content and techniques, they are structured in the same way. Since we follow a teaching model of experiment and research, each studio will have the students working in pairs, which broadens the approach to problems and forces students to articulate, organize and stimulate each other. The studios are structured in four phases:

Phase 1: Patterning (4 weeks). Initial research, material experiments, diagramming, figure-configuration matrices. Students will be doing both research into the rules of each technique and apply them to analogue materials. The research into the specific rules should be conducted by digital techniques and by searching for photos or making photos of the material research. Therefore this phase has both a strong digital as well as an analogue component. We work back and forth between making physical models, photographing them and analyzing them in Photoshop or Illustrator. Students will learn a great variety of diagramming techniques.

Phase 2: Transforming (3 weeks). Each studio will have its own type of models coming out of phase 1. Generally these models are barely capable of standing by themselves; they either start sagging or need a more rigid exoskeleton to keep them upright. The goal of this second phase is to transform the earlier flexible materials to more rigid (or fully rigid) materials. Students will build these larger models by including the actual site, which is located in a dense, urban area. Again, students proceed by model making, photography and diagramming, going back and forth between the three. All four studios need to aim for vertical structures (between approx. 1:2 and 1:3 ratio). At the end of phase 2 we will have midterm reviews. All four instructors will join each other’s reviews, mixed with faculty from Gtech. Each pair of students will present from two panels 36” by 60”, which contains photos of their analogue models as well as extensive 2D and 3D diagrams.

Phase 3. Programming (3 weeks). The program contains a large variety of spaces: small and large, low and high, public and private in every mixture. The programming phase should not become a study into architectural precedents (since this generally ruins the work of the first seven weeks), but only programmatic precedents. That means looking at examples only to obtain a better understanding of circulation, variety of spaces, the tension between service and representation, etc. The students will receive a general program which they will have to specify themselves to make it fit with their earlier research. The program needs to be extensively diagrammed according to circulation, size and organization. After the relatively short program research, students will concentrate on reconfiguring their model from phase 2.

Phase 4. Producing (3 weeks). Next to the two panels from midterm each pair will need to add two extra panels of the same size, one concentrating on the exterior of the project in its environment, the other on the interior and the quality of the spaces. The panels will need diagrams, plans and sections in the proper scale, supported by renderings with proper lighting, materials, furniture and occupants. The renderings can be replaced by photography of a physical model.

In order to evaluate the progress of each student in terms of learning objectives and outcomes, and to assess the overall quality of architectural designs as both a demonstration of skill and critical thinking/intellectual probity, the student need to fulfill a minimum requirements for the final review.

* Material models Phase I: building and testing instrumentality.
* Material models Phase II: incorporating site conditions into first machine.
* Material models Phase III: reconfiguring the first material experiments into more rigid building materials that introduce a production logic.
* Material models Phase IV: Large scale models which contain plans and sections in a demonstrative manner and allow outsiders to read the models as building proposals.
* Photography of the models in all Phases that function as analytical diagrams as well as renderings.
* Diagrams: in each Phase of the process it is necessary to show clear and concise diagramming techniques.

At the end of the semester, after final reviews, each student is required to leave their final models and photos on their desks.

**Archiving**

In some courses, selected students may be required to submit physical examples of their work or digital examples no later than one week after the end of term, to their instructors or administration for archiving. By enrolling, each student grants a license to reproduce and display his or her work. This is a chance for students to have their work shown online and potentially featured in forthcoming publications.

Class Schedule

See attached annotated class schedule. Please note: this schedule is subject to periodic revisions over the course of the term. Updated schedules will always be posted on the shared course folder.

# COURSE POLICIES

**Attendance**

Attendance at all class meetings is mandatory and crucial to successful completion of this course. If you do not present your work or participate in class your course grade will be affected. Attendance will be taken at the beginning of each class period and punctual arrival is required. Late arrivals or departures from class will be counted as absences; **more than two unexcused absences or three total absences will be grounds for reduction of your course grade by a full letter grade**. Absences will be excused only for medical or family emergencies documented in writing. Student must contact instructor as soon as possible to inform them of the emergency situation. Failure to do so will potentially result in an unexcused absence. There will be no incompletes awarded without appropriate reason nor without a prior meeting, in person, of the student and the instructor. Grade queries or disputes should be taken up first with one’s section instructor. If they cannot be resolved at that level, they may then be brought to the coordinator’s attention.

Don’t jeopardize your overall performance and course grade by skipping class. You are not allowed to work on assignments for other courses during class meeting times for this course.

Your grade for this course will be determined based upon the quality of the work you produce, your improvement over the course of the semester, completion of required course assignments, quality of class participation, and attendance, attitude and ethical conduct.

Link to GT Attendance Policy - <http://catalog.gatech.edu/rules/4/>

**Grading**

Your grade for this course will be determined based upon the quality of the work you produce, your improvement over the course of the semester, completion of required course assignments, quality of class participation, and attendance, attitude and ethical conduct. Other factors impacting your grade include attendance, participation, timely completion of work, the depth of engagement in studio issues, and on demonstrating progress throughout the semester. Craftsmanship and competent and consistent execution of models and drawings is also important and it is factored into your grades. Remember, grades are earned by you – not given by your instructor.

* A grade of “F” indicates a failure to meet the studio requirements, including attendance, minimum requirements concerning presentation and fulfillment of studio requirements. In case of an “F”, the studio will need to be repeated.
* A grade of “D” means that you have significant attendance problems, your studio performance is poor, including failure to meet deadlines, the basic requirements of the studio, and/or your project is not plausible.
* A grade of “C” means that you have met the minimum requirements of the studio, but your project is plausible, even if substantially undeveloped.
* A grade of “B” means that you have met the basic requirements of the studio and that your project is developed to the point where evaluation can be made according to the studio’s themes and criteria.
* A grade of “A” means that your project clearly represents both a clear understanding of studio themes and criteria, and a self-motivated exploration beyond the basic course requirements. Projects that receive grades of “A” are exemplary projects in terms of concept, production, and craft.

Evaluation of a student’s performance in each course is the responsibility of the instructor for that course. If the grade is disputed, a student may appeal to the instructor for a review. If, after the review, the student still believes that a grade has been assigned unfairly, the student may submit a written request for a grade appeal to the School Chair. The petition must clearly state the reasons for the appeal. A committee of faculty and students will convene to review the work and make a decision as to whether the grade will stand or be changed. Petitions must be settled and a final grade submitted to the registrar no later than three weeks after the end of the term in which the course was completed. The School Chair will inform the student of the committee’s decision regarding the grade appeal, and their decision is final.

A student may receive a grade of incomplete (I) by requesting permission from the instructor prior to the date of the final examination or presentation. Permission will be granted only under extraordinary circumstances and usually for medical reasons.

# Academic Integrity and Conduct

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. All Georgia Tech students should familiarize themselves with and abide by the Georgia Tech Honor Code: <http://www.catalog.gatech.edu/rules/18/>. Any student suspected of cheating on a quiz or exam or caught plagiarizing will be reported to the Office of Student Integrity.

For expectations of student and instructor conduct more generally, consult section 19 of the catalog listed above, entitled “Code of Conduct,” http://www.catalog.gatech.edu/rules/19/, and section 22, entitled “Student-Faculty Expectations,” at http://www.catalog.gatech.edu/rules/22/.

All persons in the classroom are expected to behave with courtesy towards others and in a way that does not interfere with the regular conduct of the class. Cell phones are to be turned off when students enter the classroom and should remain off for the duration of class; laptop computers are to be used only for taking notes; and students should not engage in private conversations while the instructor or other students are speaking. Anyone who does not adhere to these basic courtesies will be asked to leave.

# Accommodations for Students with Disabilities

Any student with a disability, that may require accommodation, should contact Office of Disability Services at 404-894-2563 or visit <http://disabilityservices.gatech.edu> to make an appointment to discuss his or her special needs and obtain an accommodations letter. He or she should also schedule an appointment to speak with the course instructor.

**Emergencies**

In case of emergency (e.g., fire, accident, or criminal act), please call the Georgia Tech Police at 404-894-2500. Please note that Perry Minyard, IT Support Administrator for the College of Architecture, is also a firefighter and an Emergency Medical Technician (EMT) certified in performing CPR.

**Ownership**

Physical copies of student work submitted to the school to satisfy course requirements—including, but not limited to digital files, papers, drawings, and models—become the property of the school. It is assumed as no obligation to safeguard such materials and may, at its discretion, retain them, return them to the student, or discard them.

# College of Design Facility Rules and Guidelines

Please consult the Georgia Tech Student Handbook regarding the use of facilities and all Institute policies. Aerosol sprays of any kind are strictly banned from the studio and surrounding areas. A new spray painting booth is now in operation in the COA shop, on the ground floor of the East Architecture Building.

Shop Use: All students using shop facilities must first have completed an orientation. Safety first, always! Noise should be kept to a minimum. Music may be listened to only through headphones, including evenings and weekends.

Studio Housekeeping: Students should feel free to organize their space creatively and expressively, but with respect to others around them. Try to prevent clutter from becoming a nuisance, distraction, or a hazard. The cleaning staff makes every effort to determine what is and is not trash, but their job can be made easier if you keep drawings filed and models off of the floor.