**Course Number: ID1419**  
**Course Title:** Introduction to Sketching and Modeling 2

**Instructor:** Wayne Li (lead), John Lau

**Credit Value:** 1 credit hour

**Course Times:** Thurs 12 – 3pm.

**Corequisites:** ID1012, ID1102, ID1402  
**Prerequisites:** ID1418

Catalogue Description: Introduction to intermediate visual representation techniques that empower designers of products, services and systems through sketching, model making, computer-assisted drawing, rapid prototyping, and other methods.

**Objectives:**

This course deals with the various ways that designers communicate visually. Emphasis will be placed on clear communication that is effective and efficientin its intent. Exercises that stretch the habits of the mind that lead to confident visual communication are also covered (e.g. cognition, design point of view, styling, gestalt). Equal parts of the course will be dedicated to 2D communication (sketching) and 3D (form-giving / model making). Drawing methods will focus on advanced freehand perspective drawing, advanced styling techniques (Canson, marker, Gouache) and digital rendering. Design intent will be emphasized more critically. Form-giving methods will involve low, medium and high resolution prototyping techniques (paper, foam-core, pink/yellow foams, and digital 3D/SLA rapid printing) but will focus on communication. Techniques will require actual demonstration and documentation.

Specifically, the course objectives are to:

* Apply gestalt theory in 2D and 3D mediums- primarily drawing (vs. graphics) and model making. This can be done through hand sketches, thumbnails, ideation, rendering, form-giving, mockup models, appearance models and works like / looks like model making.
* Improve the visual communication skills of the students, as pertaining to drawing and modeling.
* Increase the creative confidence in each student and heighten the attention to craft resulting in the medium.
* Deal with the perception of the work by the audience and visual hierarchy of the perception in the work.

**Learning Outcomes:**

Upon completion of the course students are expected to demonstrate knowledge, skill and abilities in the following areas:

Observation

* + - * + Ability to carefully observe the environment as it relates to shape, form, shadow, and space
        + Observe and critique their own work and those of others in a manner that is constructive and positive

Visualization / Applied Imagination

* + - * + Ability to stretch applied imagination skills, coming up with ideas with both fluency and flexibility.
        + Ability to cycle rapidly and iteratively through the design process to drive ideas
        + Use their visualization skills to communicate ideas in a compelling manner.

Creative Skills

* + - * + Drawing Skills: Advanced Perspective Construction
        + Modeling Skills: Form-giving, Mockups, Mechanism, Appearance (higher resolution materials)
        + Rendering / Finishing: Advanced Rendering Technique, Studio and Flash Photography
        + Gestalt Theory: Elements of Art, Design Principles
        + Attention to Craft: Quality of workmanship
        + Attention to Material: Prototyping Intent

Communication

* + - * + Ability to express ideas in 2D, 3D work and project presentations
        + Designer’s Intent: Purposeful Design point of View
        + Ability to explain the design process / design thinking, and justify decisions / the outcome
        + Ability to explain the design in relation to materials and environment

Presentation

* + - * + Present work in a professional manner (visual, verbal, and experiential)

***Course Format:***

Instructional methods for teaching the course include:

* Lectures and in-class demonstrations
* Group and Individual Assignments
* Visual Language Projects and Shop Workshops
* Presentations and Reviews
* Readings

1. **Assignments**

Course lectures and homework assignments will be handed out periodically to enforce the class learning. The physical deliverables of the homework will result in visual works (drawings, models, sculptures, presentations etc).

1. **Exercises / Course Modules**

Class Exercises given in class to strengthen mastery of tools and lecture work. Class participation and attendance will also be monitored to determine grading. Further, module techniques: such as gesture, contour, foam-core studies, and rendering may require outside home work / shop time to complete, which will be critiqued in class.

1. **Visual Language Projects**

These projects and shop demonstrations will be used to incorporate the basics in the course modules and provide a creative avenue (one-offs) that reinforce applicability to gestalt, and may be used to apply into the sister studio projects.

1. **Class Critiques**

The class will have periodic critiques that are used to spur work, assess learning and introduce topics for further study and refinement.

**Weekly Learning Activities:**

* Lecture and In-Class Demos (2 hours)
* Presentations / Critiques (1 hours)
* Total - 3 hours

**Scope of Work:** Develop a body of evidence showing an understanding of fundamental visual language. This involves using drawing and model making to convey ideas in a convincing manner.

**Course Schedule: (subject to change: see Schedule handout for exact details)**

Week 1 Class Introductions

Week 2-5

**Exercise 1 Gestural Sketching and Modeling**

*To support 3D Printed Ring (or similar) project*

Visual Communication

Advanced Ideation

Orr Power Drawing

Complex Curvature: Form-giving

Advanced Perspective Drawing – 3 pt and beyond

Canson, Pastel, Masking and Airbrush

Mechanism Design

Presentation and Design Intent

Week 6-9

**Exercise 2 Descriptive Sketching and Modeling**

*To support Furniture / Stool Design (or similar) Assignment*

Modeling for Function

Advanced Form-giving

Mid-Fidelity Prototyping

Prototyping Intent

Advanced Rendering: Canson v2 / Reverse or High Black Technique

Rapid Prototyping

Advanced CAD Modeling: Surfacing

Week 10-14

**Exercise 3 Prescriptive Sketching and Modeling**

*To support Final (soft goods/shoe or similar) Project*

Studio Photography: Studio and Flash

Digital Sketching (CAID)

Advanced Appearance Models / 3D Prints

Designers Intent and Visual Layout

Product Design Presentation

Week 15 Reflection

**General Responsibilities and Expectations:**

Attendance: Students are required to be in class with their work ready for review. More than 3 absences automatically result in a one letter grade reduction. Any extenuating circumstances for absences beyond three must be documented.

Presentations: Students are expected to maintain a *professional* standard of presentation. While equipment for presentations will be provided (pinup boards, projector, A/V), any special considerations need to be voiced before presentation time, and if not available from the school, will be the responsibility of the student.

Deadlines: Studentswill hand in their work presentations by due date deadlines. Deadlines are set by the instructor and are *hard* deadlines. Late work will only be accepted under extenuating, documented circumstances.

Participation:Attendance and participation is expected in class and outside team meetings. Class participation indicates a demonstration of independence, initiative, and time management, i.e., professionalism. Participation/attendance will be taken throughout the semester.

**Deliverables – Homework / Exercises Only: (see Schedule sheet for exact deliverables / due dates)**

* Weekly Sketches / Sketch Practice (25%)
* 50 Objects (5%)
* Environment or Vehicle / Droid Sketch (10%/15%)
* Canson Drawing (10%)
* Clay Model (5%)
* Foam Core Machine (10%)
* Rendering / Presentation (10%)
* 3D Printing / Digital Sketches (10%)
* Photography Assignment (P/F)
* **Visual Language / Final Project Presentation (see grading: 35% of total grade)**

**Evaluation Criteria:**

Projects will be evaluated on demonstrated understanding and relevance to lecture materials and comprehension of techniques and exercises taught in class. Assignment criteria, such as clarity of representation, clarity of visual communication, and demonstration of time commitment and other metrics will be clearly labeled for each assignment. Observations of contributions to solo and group activities, craft and quality of visual work, and clarity of verbal and graphic presentations will also contribute to grade assessment. Final Projects and Visual Language Projects as a total sum learning of the class is heavily weighted (35%). Finally, class participation and understanding of readings in preparation for class lectures will be assessed and monitored.

**Grading:**

Assignments and Homework: 50%

Class Participation: 15%

Visual Language Projects: 20%

Final Project: 15%

**Materials List:**

The materials for this lecture course are:

* Pens (felt/ball point), Pencils (soft lead/art), Cool Grey Markers / Marker Paper / Sharpies etc .
* Foam Core / Pink / Yellow Foam / Clay / Wood / etc.

**On-Line Resources:**The course will utilize T-Square (t-square.gatech.edu) for the distribution of class materials (such as lecture slides or supplemental readings), announcements, and for turning in class assignments.

Students will also make use of a range of tutorials posted on lynda.gatech.edu.

**Facilities & Equipment:**This course may make use of support facilities such as the workshop, computing lab and other resources. The College of Architecture workshop (Basement East Building) and laser-cutters (3rd floor East building) are available to support design activities. Students wishing to use the facility and equipment must have completed the required introductory course and /or have been checked out in the proper use of the equipment by the lab personnel. The College of Architecture computing lab room #104a is the primary computer lab for the ID Program. The normal operating schedule for the lab is the same as the other College of Architecture computing facilities

**Resources Required: Bibliography: (selected excerpts/reading posted on T-Square)**

* Joseph D’Amelio: Perspective Drawing Handbook: (Dover Publications), 2004
* Hanks and Belliston: Rapid Viz (Thomsen Course Technology) 3rd ed., 2008

**Recommended Reference Materials:**

* **Books:**
* Scott Robertson: How to Render: Fundamentals of Light, Shadow, and Reflectivity (*Design Studio Press)*, 2014
* Kevin Henry: Drawing for Product Designers (Laurence King Publishing), 2012
* Eissen & Steur: Sketching Presentation: Product Design (BIS Publishers), 2014

**Periodicals:**

**Web Resources:**

**Credits and Acknowledgements:** I must first take the opportunity to credit and thank the late Matt Kahn, for a foundational course ART60 and 160 at Stanford University and Cranbrook, of which ID1419 is patterned. Many of the concepts taught here draw *heavily* from his work, along with additional concepts of my own picked up at UT@ Austin-Design and the College for Creative Studies. Acknowledgements also to Kevin Shankwiler and Mark McJunkin for their Art to Part curriculum, and John Lau’s Visual Design Thinking syllabus, of which ideas for this course are also borrowed**.**

**General Notes (policies and procedures):**

**Special Needs:**

All students with special needs, permanent or temporary disabilities are urged to contact their Instructors or Troy Whyte (404-894-4874) for information or assistance to coordinate their service needs.

ADAPTS program website: <http://www.adapts.gatech.edu>/ Services for Students with Disabilities (ADAPTS) is an integral component for supporting the success of students within the Georgia Tech disabled community. Our purpose is to improve the educational development of students with disabilities and to enhance understanding and support within the institute. By being responsive to individual needs, we assure that qualified students with disabilities have equal access to all institutional programs and services. Over 170 students with chronic disabilities were served accommodations. Examples of a few qualifying disabilities are: Hearing Impairment, Visual Impairment, Mobility Impairment, Learning Disability, Attention Deficit Disorder, Cancer or other health related disease, Seizure Disorder, Multiple Chemical Sensitivity, Multiple Sclerosis, Muscular Dystrophy, Brain Injury. Accommodations and services provided may include: priority registration and assistance, academic adjustments, test proctoring, enlarged print or Braille, textbooks on tape, tutors, auxiliary equipment for loan, interpreting, note taking, removal of structural barriers, accessible parking, campus transportation, housing needs, communication with faculty about disability needs, and coordinating actions, policies, and procedures that affect students with disabilities.

ADAPTS operates under the guidelines of Section 504 of the Rehabilitation Act of 1973 and the 1990 Americans with Disabilities Act (ADA). ADAPTS serves any Georgia Tech student who has a documented, qualifying disability.

Student Bill of Rights:

1. The right to attend classes at regularly scheduled times without deviation from such time and without penalty if the student cannot attend instructional, lab, or examination hours not institutionally scheduled.

2. The right to consult with an assigned and qualified advisor for a reasonable amount of time each term.

3. The right to consult with faculty outside usual classroom time such as regularly scheduled office hours by appointment.

4. The right to have reasonable access to campus facilities of which use is required to complete course assignments and/or objectives.

5. The right to receive a syllabus for each course at the first class meeting. The syllabus should include an outline of the course objectives, criteria used in determining the course grade, and any other requirements. Students should be informed of any changes made to the syllabus with reasonable time to adjust to these changes.

6. The right to have reasonable time to learn course material prior to the administration of an examination.

7. The right of each student to receive access to any of his/her records kept by the institution.

8. The right to have reasonable access to grading instruments and/or evaluation criteria and

to have graded material returned in a timely fashion.

9. The right to be informed of the grade appeals process.

10. The right to have reasonable facilities in which to receive instruction and examinations.

11. The right to be informed in each course of the definition of academic misconduct.

**Contacting the Instructor for an Appointment:**

If you would like to arrange a meeting or appointment, please speak with the instructor after class or contact the instructor via email. Please allow 24-48 hours for a response.

*This syllabus may be subject to change during the course of the semester. IF so, the syllabus will be updated online and you will be informed of the changes.*