Course Mode: In Person
The Build Lab is designed to accommodate all enrolled students in class. We will meet in person throughout the semester, unless University policy changes.

Objectives
Practice woodworking skills: tool sharpening, millwork, joinery, gluing, & sanding.
Learn the characteristics of the material wood, including specific species.
Analyze the strength of wood joints.
Design a piece of furniture based on a program of use, with materials and techniques in mind.
Understand the point of view of the maker within the design process.
Complete the final project.

Schedule
The first six weeks, we practice solid wood joinery using hand tools and power tools. This is a crucial time to attend every day and stay current. Students sharpen chisels, mill lumber, and cut joinery. There will be an assignment each week due on Tuesday. Our discussions are grounded in wood’s cellular structure and grain direction. Strength derives from long grain, weakness from the lack of long grain. We will study furniture design history and visit the shops of Austin craftspeople to see how they work.

The Final Project is one piece of furniture of your choice of program which you will design and build. It must be mostly solid wood, no digital fabrication, and no larger than 20 cu.ft. No rocking chairs or chaise lounges. Plywood is allowed as a secondary material. Final project design assignments include sketches, scaled drawings, models at 3”=1'-0”, and full-scale mock-ups. The class holds two design reviews before construction begins, allowing six weeks for completion. Do not mislead yourself into thinking that six weeks is “plenty of time.” The class participates in school-wide final reviews with other design studios. Begin now thinking about what you want to build for your final project. On the seventh week, your proposal will be locked in.

Week 1, Sep 1
Tuesday - Handout and lecture on the properties of wood: cellular structure, grain direction, and movement with changes in moisture. Demonstration of milling lumber to S4S (surfaced four side) with chop saw, joiner, planer, and table saw.
Assignment – Buy three 2x4’s, 8’ long, preferably SPF grade. Cut to 4’ long and repeat milling procedure on 2x4’s. Closely observe the results. Due Sep 3

Thursday - Review milling exercise results and discuss grain direction. Demonstration of chisel sharpening with bench grinder and whetstones. Introduction to router, changing bits and using the router to cut mortise, using the chisel to cut the corners square.
Assignment – Repeat hinge mortise exercise 3 times in 2x4’s and once in hardwood.
Assignment (Design/build 1) – Design and build a wood Box, 27 cubic inches inside. Both due Sep 8
Week 2, Sep 8
Tuesday - Review Box designs and use the boxes to discuss craft techniques and gluing wood cross-grain. Discuss the hand tools in the class locker. Demonstration of Japanese saw for cross-cutting 2x4 by hand. Demonstrate the dado saw and the fence to cut a precise half-lap joint in 2x4’s, using test pieces. Tightness is the goal.
**Assignment** – Using Japanese saw, cut four samples of 2x4 square on ends.
**Assignment** – Repeat dado saw half-lap exercise on 2x4’s. Both due Sep 10

Thursday - Review cross-cuts and half-laps. Demonstrate hand plane use and care. Slide show of Design History images of furniture design, particularly Eames, Aalto, Nakashima, Wegner, differences between solid-wood construction and veneer or laminated construction, compare bent-lamination technique to steam-bending.
**Assignment** – Cut Block (see drawing) from cherry lumber with hand tools only. Discuss specific techniques. Due Sep 15

Week 3, Sep 15
Tuesday - Review Block. Discuss list of joint types, including joint names, mechanical properties, and strength analysis. Demonstrate mortise-and-tenon joint in 2x4’s with horizontal mortiser, chisel, and dado saw.
**Assignment** – Repeat mortise & tenon exercise. The goal is tight fit on long grain and shoulder.
Come to class with one prepared question about the text. Both due Sep 17

Thursday - Review m&t joints. Discuss Pye. Define craft, workmanship of risk, workmanship of certainty, diversity of scale, rough vs. precise, and designer’s intention. Slide show featuring examples of wood movement, wood engineering characteristics, shaping wood in 3D, fasteners, construction techniques, laminated products, and some architectural applications.
**Assignment** – Schematic Design of Final Project, including concept sketches/models and scaled drawings. Schematic Design review Sep 22

Week 4, Sep 22
Tuesday - Final Project Schematic Design review and discussion with entire class. Demonstrate 3D shaping tools and techniques.
**Assignment (Design/build 2)** – Design and make a Handle for prospective application by shaping wood in 3D. Handle due Oct 1

Thursday - Sep 24 Class field trip locations:
The house of Jean Mather whose husband Bob Mather taught Wood Design for ten years
The studio of Philippe Klinefelter, sculptor
Maček Furniture Company to see current projects

Week 5, Sep 29
Tuesday - Review Handle assignment. Discuss buying lumber at hardwood lumber stores, nomenclature, lumber grading, define the unit of one board-foot. Demonstrate hand cutting single dovetail joint using hand tools.
**Assignment** - Repeat dovetail joint four times in two species of wood.
**Assignment** – Final Project Design Development, required model at 3”=1'-0” due Oct 6.

Thursday – Discuss hardware, hinges, drawer slides. Demonstrate edge-gluing two boards and clamping tactics. Demonstration of screws, pilot holes, counter bores. Demonstrate slip tenons such as biscuit joiner and Domino machine.

Week 6, Oct 6
Tuesday - Design Development Review with guest critic.
Assignment - Make design revisions based on review discussion.
Assignment - Make a joint from list of joints.

Thursday - Discuss handouts regarding construction drawings, cut lists, and full-scale mock-ups. Discuss wood species characteristics with 25 samples of hardwood, softwood, and engineered products. Discuss imported lumber vs. domestic and standards of sustainably harvested wood.
Assignment - Work on shop drawings and cut list.

Week 7, Oct 13
Tuesday - Read handout comparing wood finishes. Look at finish sample library and discuss. Hold individual desk crits with students.
Assignment – Buy lumber for final project by Oct 20.

Thursday - The rest of the semester, studio time is devoted to individual discussions with students regarding technique, design, construction sequence, and schedule.
Assignment - Begin full-scale joinery details, create personal schedule for final project.

Week 8, Oct 20 - work and desk crits
Week 9, Oct 27 - work and desk crits
Week 10, Nov 3 - work
Week 11, Nov 10 - work
Week 12, Nov 17 - work
Week 13, Nov 24 - work, Final Review

Readings
Required reading: The Nature and Art of Workmanship by David Pye.
There will be handouts and texts on Canvas, including Design History
List of bookmarks at www.diigo.com/user/wooddesign

Grading
First 6 weeks 25%
Final project 75%
The first six weeks are graded on effort, timeliness, and craft. I evaluate final project designs based on intent (expression of a design idea), process (self-criticism, iterations, variations), and resolution (effort and craft). After the last day of the semester, the wood shop hours are shortened.

Grade Scale
A/A- Excellent
Project surpasses expectations in terms of inventiveness, appropriateness, verbal and visual ability, conceptual rigor, craft, and personal development. Student pursues content or techniques beyond what is discussed in class.

B+/B/B- Above average
Project is thorough, well-researched, diligently pursued, and successfully executed. Student pursues ideas and suggestions presented in class and puts in effort to resolve required projects.

C+/C/C- Average
Project meets minimum requirements. Suggestions made in class are not pursued with dedication and rigor. C- does not meet the minimum grade to be counted toward student’s degree.

D+/D/D- Below average
Basic skills including graphics, model-making, verbal clarity or logic of presentation are not level-appropriate. Student does not demonstrate required design skill and knowledge base.
F  Failure
Minimum objectives are not met. Performance is not acceptable

X  Excused incomplete
Given only for legitimate reasons of illness or family emergency, assigned after consultation with Associate Dean’s office. A schedule for completion must be agreed upon with Build Lab staff.

Absence policy
Attendance is mandatory. Participation is expected. Three unexcused absences will result in a full letter drop in your grade for the semester and recommendation to drop the class. Contact me ahead of time if you plan to miss class, and notify me as soon as possible if you are sick or have a family emergency. By UT Austin policy, the only absences that will be considered excused are for religious holidays or family emergency. If you plan to miss class due to observance of a religious holiday, please let me know at least two weeks in advance. You will not be penalized for this absence, although you will still be responsible for any work you will miss on that day.

If you have to be absent, use your resources wisely. Ask the Build Lab staff and other classmates for a summary and notes on any lessons you miss. You will be given an opportunity to complete the missed work within a reasonable time after the absence. Please keep me informed so that I can help you.

Build Lab Tool Safety Training
All students must take two forms of shop safety training. One is John Vekho’s in-person shop safety orientation. Two is UT’s Environmental Health and Safety department (EHS) online training module (https://utdirect.utexas.edu/ehs/class.WBX?course_comp=0&course_prefix=OH&course_number=0500) After watching the videos, each student must pass a short exam to complete the training.

Important Safety Information
Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside. 
Familiarize yourself with all exit doors of each classroom and building you may occupy.
Remember that the nearest exit door may not be the one you used when entering the building.
Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
Link to information regarding emergency evacuation routes and emergency procedures can be found at: www.utexas.edu/emergency

Safety and Class Participation/Masks
COVID-19 Update: While we will post information related to the contemporary situation on campus, you are encouraged to stay up-to-date on the latest news as related to the student experience. https://coronavirus.utexas.edu/students

For every face-to-face class experience, we will all need to make some adjustments in order to benefit from in-person classroom interactions in a safe and healthy manner. Our best protections against spreading COVID-19 on campus are masks (defined as cloth face coverings) and staying
home if you are showing symptoms. Therefore, for the benefit of everyone, this means that all students are required to follow two important rules.

• Every student must wear a cloth face covering properly in class and in all campus buildings at all times.

• Every student must engage in documented daily symptom screening. This means that each class day in which on campus activities occur, students must upload certification from the symptom tracking app and confirm that they completed their symptom screening for that day to Canvas. Students should not upload the results of that screening, just the certificate that they completed it. If the symptom tracking app recommends that the student isolate rather than coming to class, then students must not return to class until cleared by a medical professional.

If a student is not wearing a cloth face covering properly in the classroom (or any UT building), that student must leave the classroom (and building). If the student refuses to wear a cloth face covering, class will be dismissed for the remainder of the period, and the student will be subject to disciplinary action as set forth in the university’s Institutional Rules/General Conduct 11-404(a)(3). Students who have a condition that precludes the wearing of a cloth face covering must follow the procedures for obtaining an accommodation (https://orientation.utexas.edu/students-with-disabilities)

Services for Students with Disabilities
The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Services for Students with Disabilities (SSD). Please refer to SSD’s website for contact and more information: http://diversity.utexas.edu/disability/.

If you are already registered with SSD, please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.

Required supplies
Lock for desk
Tape measurer, combination square, 1” chisel
Dust masks. The good ones have two straps.
Lumber

Keep the shop clean
CLEAR your bench top and sweep the floor at the end of work day.
The only available scrap wood is in the scrap bins.
When gluing, cover the bench top with newspaper or wax paper.

Observe safety rules and tool maintenance
Wear hearing, eye, and respiratory protection.
No MDF. No reclaimed lumber unless specifically approved.

Sharing of Course Materials is Prohibited
No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class unless you have my explicit, written permission. Unauthorized sharing of materials promotes cheating. It is a violation of the University’s Student Honor Code and an act of academic dishonesty. I am well aware of the sites used for sharing materials, and any materials found online that are associated
with you, or any suspected unauthorized sharing of materials, will be reported to Student Conduct and Academic Integrity in the Office of the Dean of Students. These reports can result in sanctions, including failure in the course.

Class Recordings
Class recordings are reserved only for students in this class for educational purposes and are protected under FERPA. The recordings should not be shared outside the class in any form. Violation of this restriction by a student could lead to Student Misconduct proceedings.