

# Design Principles and Practices

SPDA 3350  
Mon and Wed, 9:30-10:50 am  
Hall Park A  
Room 129  
Fall 2021

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Office hours  
By appointment

*This course surveys over 100 design principles applicable to nearly every design profession. You will gain a foundational understanding of universal laws of design, human factors and design methodologies that you may use throughout your education and career pursuits.*

## Learning Objectives

Upon successful completion of this course, you will:

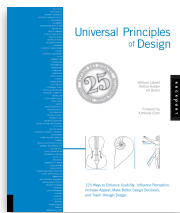
- Identify principles of design in digital and analog objects
- Explain and execute a design process and prepare materials related to and around the process
- Critique designs using principles rather than notions or vaguely-formed opinions

## Course Materials

In addition to an open mind, you will need:

- An unlined sketchbook
- A set of Principles cards
- An ultra fine point marker

You will need the following books for this course:



*Universal Principles of Design, Second edition*  
William Holden

ISBN 1592535879



*Design Basics Index*  
Jim Krause

ISBN 1581805012

## Philosophy

Good design expresses insight into human behavior, psychology, perception and meaning making. This course balances a scholarly understanding of design with a practical execution of design.

## Course Requirements and Grading

A list of assigned readings and materials is attached. Supplemental materials are posted electronically. Advance preparation and enthusiastic participation is an important part of the learning experience and critical to in-class discussions.

15%	Class participation
15	Weekly sketchnotes
15	Principles in Practice
45	Design Challenges
10	Final Portfolio

## Design Principles

The principles we will study this semester are divided into nine major categories and colour coded.



Aesthetic Bias  
Aesthetic Toolbox  
Design Process  
Dimensional Perception  
Preferences  
Human Factors

Information Architecture  
Less is More  
Psychology and  
Aesthetics  
Human Appeal

## Semester Schedule

The following week-by-week breakdown explains the structure of the course. Complete explanations of what is due, additional reading materials, quizzes and assignment submissions are on Canvas, canvas.unt.edu.

### Introduction: What is Design?

**Week 1**  
Aug 23, 25

*We define what we mean by 'design' and explore the difference between art and design. The following sentence by John Heskestad should seem less esoteric by the end of class: Design is to design a design to produce a design.*

Due Aug 29  
Sunday,  
before  
midnight

#### Read

Garrett: *User Experience and Why It Matters*  
Rutledge: *Creativity is Not Design*  
Rolston: *The Politics of Moving Minds*  
Brown: *Learning is Misunderstood*  
The Less is More set of principles

#### Homework Due Aug. 29th by midnight

Sketchnotes practice submitted as PDF and Zip file to Canvas  
Propositional Density logo analysis due in Canvas as PDF.

### Less is More

**Week 2**  
Aug 30,  
Sept 1

*"The more stuff in it, the busier the work of art, the worse it is. More is less. Less is more."*  
– Ad Reinhardt

#### Principles We Will Review in Class: Less is More

Form Follows Function – *beauty is purity of function*  
Ockham's Razor – *choose simplest of functionally equivalent designs*  
80/20 Rule – *80% of products use involves 20% of its features*  
Flexibility-Usability Tradeoff – *as flexibility increases, usability decreases*  
Horror Vacui – *tendency to fill blank spaces*  
Propositional Density – *relationship between design elements and meaning they convey*  
Signal-to-Noise Ratio – *choose design that has high signal-to-noise ratio*

#### In-Class Design Challenge

**Be dense:** Calculate the propositional density of a logo

#### Homework Due Sept. 5th by midnight

Less is More principles submitted as PPT deck to Canvas and on Mural board  
Less is More Sketchnotes in sketchbook to show for a completion grade in Wk3 Monday class.



**Week 3**  
**Sept 6**  
**Labor Day -**  
**no class**  
**8**

## Design Process

*We examine a design process that allows you to interpret and intentionally address a problem. A problem should be approachable, understandable, actionable, and clearly scoped—not too big nor too small, not too vague nor too simple.*

### Principles We Will Review in Class: Design Process

Accessibility – *objects should be usable by as many people as possible*  
 Design by Committee – *design process based on group consensus*  
 Development Cycle – *heuristic steps of discovery*  
 Garbage-In-Garbage-Out – *quality output depends on quality info in*  
 Iteration – *repeated operations to reach desired result*  
 Life Cycle – *stages of product existence*  
 Most Advanced Yet Acceptable – *finding most commercially viable design aesthetic*  
 Personas – *use archetypes to guide decision making in design process*  
 Prototyping – *simplified models to explore ideas*  
 Satisficing – *settle for satisfactory rather than optimal solution*  
 Scaling Fallacy – *tendency to assume system will also work at different scale*  
 Storytelling – *create imagery, emotions and understanding*

### Homework Due Sept. 12th by midnight

Design Process principles submitted as PPT deck to Canvas and on Mural board  
 Design Process Sketchnotes in sketchbook to show for a completion grade in Wk3 Monday class.



## Aesthetic Bias

**Week 4**  
**Sept 13, 15**

*We examine our natural bias toward beauty and order.*

### Principles We Will Review in Class: Aesthetic Bias

Aesthetic-Usability Effect – *aesthetic design perceived to be easy to use*  
 Attractiveness Bias – *why beautiful people excel*  
 Baby-Face Bias – *attraction to all things cute*  
 Closure – *seeing groups of design elements as one large design element*  
 Constancy – *perception of constancy in spite of actual expression*  
 Fibonacci Sequence – *sequence of numbers that are sum of two preceding*  
 Golden Ratio – *geometric theorem for balance in design*  
 Good Continuation – *Gestalt of perceived connectivity of elements*  
 Law of Prägnanz – *tendency to interpret ambiguous info*  
 Picture Superiority Effect – *remember pictures better than words*  
 Prospect-Refuge – *tendency to prefer unobstructed views and areas of concealment*  
 Savanna Preference – *aboriginal preference for open spaces*  
 Wabi-Sabi – *objects that embody nature and simplicity are more meaningful*

### Homework Due Sept. 19th by midnight

Aesthetic Bias principles submitted as PPT deck to Canvas and on Mural board  
 Aesthetic Bias Sketchnotes in sketchbook to show for a completion grade in Wk5 Monday class.





**Week 5**  
Sept 20, 22

## Dimensional Perception Preferences

*We examine how we perceive the three-dimensional world around us.*

### Principles We Will Review in Class: Dimensional Perception Preferences

Common Fate – *objects in the same direction are related*  
Defensible Space – *space that indicate territory and ownership*  
Figure-Ground Relationship – *perceived objects in front of a field*  
Orientation Sensitivity – *discrimination of directional elements*  
Three-Dimensional Projection – *tendency to perceive world in 3-D*  
Top-Down Lighting Bias – *tendency to understand source of lighting*  
Visibility – *spatial cognitive understanding*  
Wayfinding – *special information to enhance navigation*

### Homework Due Sept. 26th by midnight

Aesthetic Bias principles submitted as PPT deck to Canvas and on Mural board  
Aesthetic Bias Sketchnotes in sketchbook to show for a completion grade in Wk6 Monday class.



**Week 6**  
Sept 27, 29

## Aesthetic Toolbox

*We examine principles that can be used in composing designs, displaying information and creating interfaces.*

### Principles We Will Review in Class: Aesthetic Toolbox

Alignment – *design elements align along hidden lines*  
Color – *symbolic meanings in color to manipulate and emphasize*  
Consistency – *usability improved when similar parts expressed in similar ways*  
Convergence – *synonym for stability in designed solutions*  
Highlighting – *bringing visual attention to design elements*  
Iconic Representation – *icons improve recognition and recall*  
Modularity – *complex system divided into smaller compatible parts*  
Normal Distribution – *symmetrical data, bell-curve*  
Proximity – *info close together perceived to be related*  
Rule of Thirds – *composition technique for balance*  
Similarity – *elements of similar nature seem related*  
Symmetry – *visual equivalence among elements*

### Homework Due Oct. 3rd by midnight

Aesthetic Bias principles submitted as PPT deck to Canvas and on Mural board  
Aesthetic Bias Sketchnotes in sketchbook to show for a completion grade in Wk7 Monday class.





**Week 7**  
Oct 4, 6

## Psychology and Aesthetics

*We examine our psychology and the limits of our ability to perceive.*

### Principles We Will Review in Class: Psychology and Aesthetics

Biophilia Effect – *nature views enhance focus and concentration*  
Cathedral Effect – *high ceilings for creativity; low ceilings for detail-oriented thinking*  
Cognitive Dissonance – *tendency to seek consistency in thinking*  
Depth of Processing – *deeply analyzed information is quickly recalled*  
Framing – *manipulating how information is presented*  
Hierarchy of Needs – *stratification of aesthetic needs based on Maslow*  
Inattentional Blindness – *inability to process something in plain view*  
Mnemonic Device – *organize information to make it memorable*  
Nudge – *alter behavior with little changes*  
Operant Conditioning – *perceptual modification via range of stimuli*  
Priming – *activating concepts in memory to influence subsequent behaviors*  
Threat Detection – *natural abhorrence to negative imagery*  
von Restorff Effect – *well placed discontinuity to engage memory*

### Homework Due Oct. 10th by midnight

Psychology and Aesthetics principles submitted as PPT deck to Canvas and on Mural board  
Psychology and Aesthetics Sketchnotes in sketchbook to show for a completion grade in Wk8 Monday class.



## Human Factors

**Week 8**  
Oct 11, 13

*We examine how to optimize how we as humans interact and perform within a system.*

### Principles We Will Review in Class: Human Factors

Affordance – *physical design telegraphs use and function*  
Desire Line – *traces of use that indicate preferred methods of interaction*  
Entry Point – *obvious point of entry into a design i.e., front door*  
Expectation Effect – *leading the audience to an expected result*  
Forgiveness – *help users avoid and minimize consequences of errors*  
Freeze-Flight-Fight-Forfeit – *ordered sequence of responses to acute stress*  
Interference Effects – *conflicting cognitive processes slow down thinking*  
Mapping – *cognitive understanding to initiate actions*  
Mental Models – *cognitive understanding based on experience*  
Mimicry – *transferring understood properties to new things*  
Performance Load – *greater the effort, greater chance of failure*  
Performance vs. Preference – *optimum gives way to preference*  
Progressive Disclosure – *sequentially disclosed information*  
Readability – *quick understandability*  
Recognition Over Recall – *memory for recognizing things better than for recalling*  
Serial Position Effects – *info at ends more memorable than middle*

### Homework Due Oct. 17th by midnight

Human Factors principles submitted as PPT deck to Canvas and on Mural board  
Human Factors Sketchnotes in sketchbook to show for a completion grade in Wk9 Monday class.

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## Information Architecture

**Week 9**  
Oct 18, 20

*We examine how to organize, label and otherwise architect information within complex information systems.*

### Principles We Will Review in Class: Information Architecture

Chunking – *clustering information & elements to make memorable*  
Comparison – *represent two or more variables in a controlled way*  
Confirmation – *designed barriers to take next steps*  
Constraint – *designed limitations to guide user*  
Control – *put user in the drivers seat according to expertise*  
Feedback Loop – *information return to modify future behavior*  
Fitts' Law – *time to move target is size and distance*  
Five Hat Racks – *ways to organize information*  
Gutenberg Diagram – *general pattern of eyes reading information*  
Hick's Law – *time increases as alternatives increases*  
Hierarchy – *complex information organized and structured visually*  
Layering – *organize info into related groups*  
Legibility – *visual clarity, contrast, spacing etc.*

### Homework Due Oct. 24th by midnight

Human Factors principles submitted as PPT deck to Canvas and on Mural board  
Human Factors Sketchnotes in sketchbook to show for a completion grade in Wk10 Monday class.

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## Human Appeal

**Week 10**  
Oct 26, 28

*We examine factors that contribute to our innate animal magnetism -- physical traits and psychological conditions.*

### Principles We Will Review in Class: Human Appeal

Classical Conditioning – *associate stimulus with physical or emotional response*  
Contour Bias – *preference for contours instead of sharp angles or points*  
Face-ism Ratio – *ratio of face to body influences perception*  
MAFA Effect – *tendency to prefer facial features close to average of population*  
Red Effect – *women wearing red more attractive; men more dominant*  
Uncanny Valley – *anthropomorphic forms unappealing when very similar to humans*  
Veblen Effect – *tendency to find product desirable because of high price*  
Waist-to-Hip Ratio – *preference for particular ratio of waist size to hip size*

### Homework Due Oct. 31st by midnight

Human Appeal principles submitted as PPT deck to Canvas and on Mural board  
Human Appeal Sketchnotes in sketchbook to show for a completion grade in Wk10 Monday class.

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**Week 11**  
Nov 2, 4

## Presentation: Project Update

*Present your cognitive teardown of the object you are redesigning to your classmates and obtain feedback.*

### Homework Due Nov 7th by midnight

Update submitted as PDF/PPT and Zip file to Canvas

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**Week 12**  
Nov 9, 11

## Prototype Explorations

*Explore various approaches to your redesign and obtain user feedback.*

### Homework Due Nov 14th by midnight

Update submitted as PDF/PPT and Zip file to Canvas

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<b>Week 13</b> Nov 16, 18	<b>High-Fidelity Prototyping</b> <i>Explore simple methods to create high-fidelity prototypes.</i>  <b>Homework Due Nov 21st by midnight</b> Update submitted as PDF/PPT and Zip file to Canvas
<b>Week 14</b> Nov 23, 25	<b>Workshop</b> <i>Obtain feedback on your semester project before presenting.</i>  <b>Homework Due Nov 28th by midnight</b> Update submitted as PDF/PPT and Zip file to Canvas
<b>Week 15</b> Nov 30, Dec 2	<b>Final Presentations</b> <i>Present your semester redesign project</i>  <b>Homework Due Dec 5th by midnight</b> Update submitted as PDF/PPT and Zip file to Canvas
<b>Week 16</b> Dec 7, 9	<b>Final Presentations</b> <i>Present your semester redesign project</i>  <b>Homework Due Dec 12th by midnight</b> Update submitted as PDF/PPT and Zip file to Canvas



## Semester at a Glance

The first 10 weeks of the semester are devoted to learning, understanding and apply principles of design through readings, slides and challenges. In the remaining weeks, you apply the design process to your semester project.

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Principles in Practice	•	•	•	•	•	•	•	•	•						
Sketchnotes		•	•	•	•	•	•	•	•						
Design Challenge		•		•		•	•		•	•					
Portfolio/Final Project				•		•		•		•	•	•	•	•	•

## UNT Policies

### Academic Integrity Standards and Consequences.

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

**ADA Accommodation Statement.** UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website at [disability.unt.edu](http://disability.unt.edu).

**Course Safety Procedures (for Laboratory Courses).** Students enrolled in [insert class name] are required to use proper safety procedures and guidelines as outlined in UNT Policy 06.038 Safety in Instructional Activities. While working in laboratory sessions, students are expected and required to identify and use proper safety guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment and tools, handling chemical solutions and hot and cold products. Students should be aware that the UNT is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider obtaining Student Health Insurance. Brochures for student insurance are available in the UNT Student Health and Wellness Center. Students who are injured during class activities may seek medical attention at the Student Health and Wellness Center at rates that are reduced compared to other medical facilities. If students have an insurance plan other than Student Health Insurance at UNT, they should be sure that the plan covers treatment at this facility. If students choose not to go to the UNT Student Health and Wellness Center, they may be transported to an emergency room at a local hospital. Students are responsible for expenses incurred there.

**Emergency Notification & Procedures.** UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Blackboard for contingency plans for covering course materials.