First vs Second Order Design
Defining game mechanics
Game Mechanics
Dynamics
Aesthetics
2 approaches to game design
Aesthetic #1: Sensation
Aesthetic #2: Fantasy
Aesthetic #3: Narrative
Aesthetic #4: Challenge
Aesthetic #5: Fellowship
Aesthetic #6: Discovery
Aesthetic #7: Expression
Aesthetic #8: Abnegation (Submission)
Aesthetic #9: Competition

Analyzing menus and controls
First-Order Optimal Strategies (FOOS)
Breakpoints in Games
Player Mode
Player Interaction Patterns
Objectives
Objective categories
Procedures and rules
Resources
Conflict
Boundaries
Outcome
Formal elements framework
Questions to ask yourself when designing games

Event-Driven Programming
Events in Games
Video Games Structure
The Game Loop
Step 1: Player Input
Step 2: Process Actions
Step 3: Process NPCs
Step 4: Process the World
Step 5: Prepare to Draw

Step 6: Pre-draw to buffer

Procedures and Rules
Controller complexity
Actions vs Interactions
Game mechanic
Designing actions
Primary vs secondary verbs
Finding good verbs
Combining actions
Emergent behavior

Interactions
Constitutive Rules
Implicit rules
Designing good rules
Mechanics vs Rules
Depth vs Complexity
Graphics vs Visual Design
Sprites, drawing sprites

Scrolling, parallax scrolling
Types of cameras
Kinematics vs dynamics
The role of physics
Newton's laws
Physics with collisions
Momentum and impulse
Coefficient of restitution (COR)
Creating hitboxes
Bounding boxes
Overlap testing, problems with overlap testing
Finding the moment of collision
Raycasting (swept collision detection)
Determining hitbox collisions
Cheaper distance tests
Achieving O(nlogn) complexity
Collision resolution