IMGD 1001:
The Game Art Pipeline

(Visual) Artistic Courses
- IMGD/AR 2101. 3D Modeling.
- IMGD/AR 2200. The Art of Animation.
- IMGD 3500. Artistic Game Development I.
- IMGD 4500. Artistic Game Development II.
- (AR 2yyyy. Digital Painting)

Introduction
- "The computer artist is modern-day alchemist" - Matthew Omernick
  - Turn polygons and pixels into wondrous worlds
- Sources of inspiration
  - Playing games!
  - How can make fun game if not having fun yourself?
  - The real world
  - The real world is always more interesting than anything we can make up

Introduction:
Remember the Constraints
- Year 2098, Microsoft will release FunStation 3000, 14 million terabytes of RAM, quantum-holographic drive with near infinite storage, processors at the speed of light
- Game developers complain not fast enough
  - Game artists must be creative inside confines of technology
    - All disciplines: engineering, design, sound
    - But often constraints biggest on artist

Outline
- The art pipeline (this deck)
- Concept art
- 2D Art
  - Animation
  - Tiles
- 3D Art
  - Modeling
  - Texturing
  - Lighting

What's a Pipeline?
- In the pipeline
  - Informal. In the process of being developed, provided, or completed; in the works; under way. (Random House)
- For our purposes
  - The sequence of operations required to move art assets from concept to the finished product
  - The Art pipeline
    - 2D: Concept, Creation, Conversion
    - 3D: Concept, Creation (modeling, texturing, lighting), Conversion
    - Asset management
Types of 2D Art

- These are created with tools:
  - User Interface (UI)
  - Sprites, tiles, and other pixel art
  - Type and fonts

- These need a pipeline:
  - Character art
  - Scenery / worlds
  - Characters
  - Animation
  - Video

2D Asset Creation

2D Pipeline (1 of 3): Concept

- Sketches
  - Napkin-style
  - Detailed design treatments
  - Prototypes

"Napkin-style" Concept Art

2D UI Prototype

Paper UI Prototype

designersnotebook.com

boxesandarrows.com
2D Pipeline (2 of 3): 

**Creation**
- Commercial / third party tools:
  - Photoshop, The Gimp, sprite editors, HTML/browsers, Flash...
- Homegrown tools
  - Specialized animation systems
  - Tools that simulate key game features (UI layout tool, etc.)
  - The game engine

Assets for 2D Animation (1 of 3)

eberlein.org/euphoria

Assets for 2D Animation (2 of 3)
cvrpg.com

Assets for 2D Animation (3 of 3)
aniway.com

2D Pipeline (3 of 3): **Conversion**
- Putting the assets into the final form
  - File type conversion
    - PSD to TGA / JPG, for example
  - Compression
  - Collection (zip files, pak files, etc.)
  - Testing in the game
  - Debug / fix

Group Exercise
- Break into your project groups
- At the top of a piece of paper, each person writes the description (text) of a visual concept for a character/item/object in your game (3-4 minutes)
  - About 1 small paragraph
- Rotate papers among group
- In the middle of the paper, draw a concept art sketch based on the text (5 minutes)
- Pass back to the original person
- Provide feedback (verbally), and briefly in text on bottom (2-3 minutes)
- (Hand in)
3D Asset Creation

3D Pipeline (1 of 4): Concept

- Sketches
  - Napkin-style
  - Detailed design treatments
  - Prototypes
  - Maquettes (a small scale model)
  - Animation sketches / flipbooks
  - Mockup models
  - Texture mockups
  - Architectural layout

3D UI Prototype

3D Pipeline (2 of 4): Creation

- Commercial / third party tools:
  - Photoshop, The Gimp, sprite editors, HTML/browsers, Flash...
  - 3D tools: 3D Studio Max, Maya, Lightwave, Blender

- Homegrown tools
  - Specialized animation systems
  - Tools that simulate key game features (UI layout tool, etc.)
  - The game engine
  - Exporters / plugins

3D Studio Max

Stages of a Model
3D Pipeline (3 of 4): **Texturing**

- Animation systems
  - Motion capture
  - Third party tools
  - Homebuilt tools
- Texturing systems
- Shaders / surface tools
- Renderers / video systems

Texturing and Accessories

garagegames.com

<table>
<thead>
<tr>
<th>A Model, Textured</th>
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<tbody>
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<td>zbrush</td>
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Character and a Skin (1 of 2)

secretlair.com

Character and a Skin (2 of 2)

cresswells.com

3D Pipeline (4 of 4): **Conversion**

- Export from modeling to custom formats
- Putting the assets into the final form
  - File type conversion
  - PSD to TGA / JPG, for example
  - Compression
  - Collection (zip files, pak files, etc.)
- Testing in the game
- Debug / fix
Asset Management

- How do you share the production process across time, space, and content creators?
  - Source code has many tools -- "solved"
  - Data/Art is harder
    - Not easily merged
    - Dependencies not obvious
    - Relationships complex
  - Some commercial systems are trying
  - Typically a combination of:
    - Homegrown tools
    - Convention and process