Table of Contents

Art & Design Course Resources

This guide is a curated list of resources and essential production tips for a variety of media types. Students in Penn State's DMD program will refer to this guide during upper level courses where they are expected to conduct their own research and manage production steps independently.

Projects can leap between media and straddle disciplinary boundaries — but these resources had to be organized somehow! — so explore these pages as needed and don't feel constrained by these specific categories.

Media Categories

- 2D and 3D Animation
- Apps and Interactive Media (VR, AR, and games)
- 2D Design and Illustration
- Web Design and Development
- Video Production and Photography
- Audio Production and Recording
- Products, Services, and UX
- Installations and Objects (digital fabrication, art objects, prototypes, and exhibitions)

Each page describes potential project types, a recommended production timeline, and a proof of concept that you will produce early on to confirm your plan with your instructor.

If you have a project idea that doesn't fall within one of these categories, just get in touch with your instructor!

Portfolio Tips

Creating a portfolio is not a requirement for any DMD courses, but it is essential to most creative fields and something that students frequently ask about. Learn more about documenting your work and creating a website on the Portfolio Tips page.

2D and 3D Animation Projects

You can easily combine 2D and 3D animation techniques, and/or live video footage.

Types of 2D Animation Projects

1. Narrative short film
2. Storyboard images (examples below)
3. Concept art images
4. Pitch deck for a film or series; see: Stranger Things.
5. Low fidelity animatic (examples below)
6. High fidelity scene
7. Explainer animation (Vox makes a lot of fun infographic style videos)
8. Motion graphics (bumper animations, commercials, titles, user interface elements in 3D environments)
9. Experimental or non-narrative content: Examples on vimeo.com
10. Scientific or data-driven simulations and visualizations
11. VJ loops for live performances
12. Projection mapping (projecting video onto structures or surfaces)
13. Web-based animation (HTML/CSS/Javascript)

Note about short films: Short films can sometimes be completed by one person over the course of multiple years, or by a skilled team in a few short months. It is unusual for a short film to be quickly created by only one person, as there are many production requirements that take time to produce. If you would like to create a short film, consider assembling a team with complimentary skills, or choose deliverables within the domain of pre-production.

For videos, an acceptable duration depends on the nature of your project and how refined the visuals are. A low-fidelity animatic could be quite long, and a fully animated high-fidelity video would likely be much shorter given the intense time and labor required for professional animation. It's generally better to have a really impressive 30 seconds than a mediocre 5 minutes.

Production requirements

The following are common production requirements for most types of animations, and may include more or fewer depending on the project. They can also occur in different orders, but in general, if these steps are followed, you are more likely to produce a successful animation.

After creating a script and storyboard, you will have to choose one or more software tools to create your video and audio elements. If you're unsure which of the following software to use, ask your instructor!

1. **Research**
    - Brainstorm ideas and research relevant work or subject matter.
    - Collect inspiration images or clips to show the visual style you're aiming for.
    - Write a short synopsis of narrative work.
    - Concept art playlist on Youtube
    - Creating mood boards
    - InVision (collaborative inspiration board tool)
2. **Storyboarding**

    Make a storyboard! (Even if you use stick figures). This helps you plan your shots and visualize things. Don't forget to number your scenes and shots.

    This is a great place to decide on your aspect ratio (traditionally 16:9 but it depends on your distribution format and creative goals).

- Film Directing Shot by Shot by Stephen Katz — PDF Excerpts from a great book, including many storyboard examples and techniques, common shot types, and staging tips.
- Common shot types — A quick summary of shot types like "close-up" and "wide shot" that make up the grammar of films, comics, animation, and other cinematic work.
- Storyboarding for film and animation
- Storyboard Templates
- Storyboarder App
- Types of camera shots in cinema

1. **Script**

   For scripted narrative work, obviously, write a script. Experimental or documentary work might not include this step.

   - Story Development and Screenwriting — Our guide for general advice, conventions, and resources!
   - Software
     - Scrivener
     - Final Draft
     - Screenplay Formatter for Google Docs
2. **Animatics**

   Place images from your storyboard into a video editor (such as Adobe Premiere) and edit them into a rough sequence to figure out the timing and length of your animation. Animatics can be entirely still images — like a slideshow — or they can include limited animation to suggest character movement. This can be done by rapidly cutting between still images (frame-by-frame animation) or by keyframing the motion of specific assets in Premiere or AfterEffects.

   An animatic is an acceptable deliverable if it's substantial and well-crafted!

   - Animatic Foundations: Storyboarding (LinkedIn Learning)
   - Examples
     - The Grand Budapest Hotel animatic and side-by-side with final film.
     - Ratatouille animatic side-by-side.
     - Coraline animatic side-by-side
     - Lord of the Rings animatic and previsualization featurette.
     - Generic fight scene animatic test footage.
3. **Adding Sound**

   See the audio page for more.

   - Sound foley
   - Recording narration and actor dialogue
   - FreeSound — Library of Creative commons sound effects
   - Free Music Archive — Library of creative commons music
4. **Testing**

   Do a proof-of-concept (see below for more) to test out your entire workflow: video codecs, renders, lighting, animation, and simulation as needed.

5. **Animation production**

   - Traditional animation
     - LinkedIn learning path
     - Tools: ToonBoom, Blender grease pencil
     - How to create a hand-drawn whiteboard animation
   - Motion design
     - LinkedIn Learning path
     - Tools: AfterEffects, Cinema 4D
       - AfterEffects CC 2019 Essential Training: The Basics (LinkedIn Learning)
       - AfterEffects Character Animation (LinkedIn Learning)

        - 3D animation and simulation
            - Animation pipeline (LinkedIn Learning)
            - Blender — Open source and free! Include tools for modeling, shading, sculpting, animating—the works!
                - Essential Training on LinkedIn Learning
                - Blender Guru YouTube channel
            - Autodesk Maya
            - Houdini
            - 3D Realtime film
            - Cinema 4D — Integrates with Adobe AfterEffects to easily mix 3D elements with 2D animation or video.
                - Your Adobe subscription includes a copy of Cinema 4D Lite; learn more about how to access that and integrate with AfterEffects. ZBrush — A powerful sculpting tool for organic shapes and more.
        - Animation for the Web
            - Three.js — Complex but powerful framework for generating 3D animations in the browser; requires serious coding.
            - CSS Animation Basics
            - Animating SVG illustrations with CSS
            - Interneting is Hard — Basic HTML and CSS tutorials.

1. **Scoring**

    With some MIDI software, it's pretty easy to make some ominous synth tracks or arpeggiated melodies, but you can also find creative commons music to use in your projects with attribution.

    MIDI is a standard type of virtual instrument (i.e. digitally creating sounds on your computer); some audio programs are geared toward recording analog sound.

    - GarageBand — Simple MIDI instruments and editing.
    - Premiere Pro — Edit audio right in your video editor or export entire projects to Audition...
    - Adobe Audition (LinkedIn Essential Training) — Dedicated audio editor, record and mix, easily interface with Premiere (no MIDI instruments)
    - Ableton Live (LinkedIn Essential Training) — Great MIDI and recording suite, relatively cheap, great for electronic music.
    - Logic Pro — Record and mix, MIDI instruments (especially ones that sound like traditional strings, brass, etc.)
    - Pro Tools — Industry standard for recording and mixing; expensive.
    - Audacity — A free open-source audio editor. It's pretty simple, so use Adobe Audition if you can.
2. **Effects, editing, compositing, rendering**

    - Editing
        - What is a non-linear editor? (NLE)
        - Abobe Premiere Pro Essential Training (LinkedIn Learning)
        - Basic cuts (Film editing crash course)
        - Effects
        - Adobe AfterEffects — Add complex animation or special effects to Premiere clips or export standalone video.
        - DaVinci Resolve (LinkedIn Learning) — An NLE but most commonly used for color grading.
        - 3D Compositing
        - Natron
        - Nuke
        - Blender compositing
3. **Audio Editing and Mixing**

    Editing refers to placing and layering sounds in your timeline, including sound effects, music, and vocals; mixing is the process of getting them all to sound good together (\now you can show off to your friends at the Oscars).

    You can do all of this in a video editor like Premiere, but you can do some fancy stuff like noise removal if you export clips or your entire timeline into Audition.

    - Mixing Audio in Audition and Premiere
    - How to export Premiere Audio to Audition
4. **Exporting**

It's a good idea to test your workflow entirely with a proof of concept (see below) to make sure the final product looks the way you expect it to. You don't want to spend two hours rendering your video at midnight and have it turn out all squished and weird looking.

Video files include a container (a.k.a. file extension) and a codec (specific algorithm used to encode the frames of the video).
Containers:

- MOV and MP4 — Great, often what your video files are straight off the camera, and good for exporting high-quality master files.
- WebM — For video on the web; use this to get really small file sizes if you need to put your video on a website without something like YouTube or Vimeo. MP4 can also be used for this. Websites like Converterpoint are your best bet for generating these files; they'll get smaller file sizes than Premiere.

Codecs:

- h.264 and h.265 — Lossy, compressed video; h.264 is the standard codec used by most cameras, phones, and web players. It's successor is newer and will get smaller filesizes relative to quality, but may not be supported in some contexts. This is probably fine for most contexts.
- ProRes — Lossless, compressed video; this will give you better quality but potentially huge file sizes. Only use this for your main source copy of the project or potentially projecting in a theater. Not for online distribution. There are a few types of ProRes depending on your quality/filesize desires.

Frame Rates:

Typically stick with the frame rate of your source footage, though it is possible to mix frame rates within a single timeline.

- 30fps or 29.9fps — Standard video frame rate; can give a slightly "day time television" look to things.
- 24fps — The standard for film; use this for a slightly choppier, more cinematic look.

Frame Size

- 3840px x 2160px — 4K; probably overkill unless you have a 4K monitor or projector to display your work on. Useful if you want the freedom to crop shots without losing quality.
- 1920px x 1080px — Standard HD
- 1280px x 1920px — "720p" HD; sometimes nice for web uploads.
- 640px x 480px — SD; hilariously small and to be avoided unless you're putting the video on the web.

Proof of concept

The goal of an animation proof is to demonstrate that you can operate the necessary software and show that you can a strong grasp of animation principles. Choose one of the following based on your project interests:

1. **Traditional keyframe animation:** Demonstrate knowledge of keyframe animation and 12 principles by creating a few seconds of animation using a character or other content from your proposal concept. ToonBoom is the industry standard animation package, but others are acceptable.
2. **Motion design:** Create a few seconds of rendered animation using a 2D animation package like Adobe AfterEffects or 3D software such as Cinema 4D, Blender, Maya, or similar. You can also achieve motion design for the web using Adobe Animate CC.
3. **Other animations:** Create an example animatic (blocked animation and sound), animated character rig, or other animated asset relevant to your concept that demonstrates you can complete the core technical challenge of the project.
4. **Storyboard, concept art, or animatic:** Create a representative high-fidelity example of what your final product might look like.

Graphic Design, Illustration, 3D Images

Whether creating work to tell your own story, or developing branding to communicate the message of a client, this type of visual design can take many forms.

For long term projects, ensure that you are producing an appropriate amount of work. So rather than a single logo or poster, you might develop a series of images or variations for diverse use cases.

Project types

- Branding and/or print design
  - Design system or style guide
  - Logo design
  - Stationary or merchandise design
- Posters and Infographics
- Typeface design
- Digital illustrations
  - Concept art for pre-production (character, vehicle, environment design for comics, games, film, etc.)
  - Sequential comics (print or web)
  - Storyboards for narrative media (\see animation page for more)
  - Digital children's book (for iPad or mobile device)
- Architectural renderings
- Product renderings
- App or website mockups (see those respective development pages for more)
- Data visualizations or Infographics
- 2D or 3D assets for games including character design and environment design
- Code-generated art

Production requirements

1. **Research**
   - Visual and theoretical works and publications that can provide a context for your work.
   - Collect inspiration images.
     - Rebrand — Gallery of real world branding work
     - Standards — Collection of style guides from real brands
     - Daily Branding
     - Branding Style Guides — More style guides
   - For branding projects, complete a branding research document.
   - Creating mood boards
   - Dribbble — A great showcase of work in UI, branding, illustration, typography, etc.
   - *Designing Brand Identity* by Alina Wheeler and Debbie Millman (PSU Library eBook)
   - Everything you need to know about Design Systems
   - Logo Lounge Annual Trend Reports
2. **Design ideation**
   - Generative processes including kit bashing, photo bashing, or other means.
   - Thumbnail sheets
   - Create low fidelity sketches to arrive at a design direction.
     - Traditional drawing
     - Digital illustration
     - Digital design

        - Digital art
    - Common shot types — A quick summary of shot types like "close-up" and "wide shot" that make up the grammar of films, comics, animation, and other cinematic work.
3. **Design iteration and improvement**
    - Image Assets
        - The Noun Project — Creative commons vector icons
        - Unsplash — Creative Commons stock photos
        - Pexels — More CC stock photos
    - Typography
        - Google Fonts — Premiere library of free fonts and "Knowledge" articles, including a fantastic free ebook about typography.
        - Adobe Fonts
        - FontShare — Excellent library free, high-quality variable fonts.
        - Font Squirrel
        - Butterick's Practical Typography — Short but insightful guide to type principles
        - Web Typography Learning Game — Useful for any type context
    - Software
        - Adobe Illustrator — Vector editor; great for logos, screen design, layout, illustration.
            - A few tutorials on making simple illustrations in Illustrator
        - Adobe Photoshop — Raster editor; great for editing photos and digital painting.
            - Removing images from backgrounds with the Select and Mask tool.
        - Adobe InDesign — Dynamic Publication editor; great for multi-page documents or anything with a lot of text and images assets.
        - Figma — Free cloud-based vector design app, excellent collaboration and UI prototyping features.
        - Sketch — A paid vector editor favored in software industries, includes powerful collaboration tools.

1. **Packaging and presentation.**

    Consider how to present your work in a professional distribution package. How can you provide context for your design beyond simply exporting some JPEGs?

    - Project website
    - Printing a physical book
    - Poster prints
    - Formatting for digital devices
    - Digital publication (PDF)

    Often brand projects are presented as a style guide which can be a splashy presentation of the brand assets in action, and/or an authoritative "handbook" documenting all the visual assets that make up the brand's design system. If you're making a PDF or slide deck, you might include:

    - Primary logo
    - Logo variations
        - Simplified logo versions for small scale
        - Multiple lockups or variations of logo pieces.
        - Improper variations of the logo to showa client *what not to do.*
    - Color palette
    - Fonts and text styles
    - Decorative icons, patterns, shapes, etc.
    - Sample product or advertising images, social media posts, etc.
    - Value statements, copywriting, slogans, etc.

Proof of concept

A proof of concept should demonstrate drawing skills, ability to use the elements and principles of design, and proficiency with your software of choice. Showing process is important for the proof of concept, consider recording your screen, show ideas written on paper or journal, and your ability to approach a personal or client project critically and with an industry standard process.

Realtime Interactive

Types of Realtime Interactive Projects

- Augmented/Virtual Reality (AR/VR) games, visualizations, architecture, and journalism.
- Interactive 2D or 3D fiction or non-fiction story
- 2D or 3D video game, ideally something creative or serious
- Physical game (printed boards, cards, and/or 3D objects)
- Projected or screen-based interactive installation art
- Physical computing project (Arduino, Raspberry Pi, etc.)
- Creative coding projects (e.g. Processing)
- Apps for mobile devices or desktop.
    - For designer-friendly app prototypes, see the UI/UX page.

Note about realtime interactive projects: These projects are incredibly engaging and exciting means of communication. Depending on the scope of the project, they can be produced in a few days on a train, or they can sometimes take multiple years by a skilled team in a few short months. It is unusual for an interactive project to be quickly created by only one person, as there are many production requirements that take time to produce. If you would like to create a a project like this, consider assembling a team with complimentary skills, or if working solo, choose a style and assets that afford rapid production. You can outsource pre- or post-production tasks and focus on your core production interest.

Example projects

- 3D game and immersive environments
    - PlayCanvas.com (web-first game engine)
    - Blender to Unity pipeline
        - CG Masters
        - Lynda.com listing
- Augmented Reality (AR)
    - AR with Unreal Engine
    - ARKit and Unity
        - Lynda.com: Build a Drivable Car in Augmented Reality
- Apps
    - Apple Design Awards Best iOS apps
    - Somebody app — Conceptual artwork by Miranda July
    - After Ice — Climate change visualization app
- AR: XCode and UnrealEngine
    - Using XCode and Unreal together
- Virtual Reality (VR)
    - Fundamentals
        - Mixed Reality Development Fundamentals
    - Getting started with VR in Unity
    - Getting started with VR in UnrealEngine4
    - Web VR Showcase (built with A-frame web framework.)
- Computer vision and SDK
    - Processing
    - Open Frameworks
    - Pure Data
    - MaxMSP
- Motion capture

    - Kinect and Blender
- Physical Computing
    - Adafruit projects, guides, and shop
    - Arduino art projects
    - Physical computing examples

Production requirements

1. **Research**

    - Brainstorm ideas and research relevant work or subject matter.
    - Collect inspiration images or clips to show the visual style you're aiming for.
    - Write a short synopsis of narrative work.
    - Creating mood boards
    - InVision (collaborative inspiration board tool)
2. **Storyboarding or Wireframing**

    Storyboards can still be useful for interactive software or physical installations! Outline the sequence of events in your head. For apps, you would typically produce a simple wireframe using sketched screens or post-its to figure out the how users would navigate your interface.

- Storyboarding for film and animation
- Storyboard Templates
- Storyboarder App
- Wireframing Best Practices (Practical UX Weekly on LinkedIn Learning)
- Illustrator for UX Design (LinkedIn Learning)
- Wireframing in Adobe XD (LinkedIn Learning)
- InVision Prototyping Tool — Turn sketches or screen designs into an interactive prototype.

1. **Asset production**

    Prepare images, sounds, 3D models, textures, or other assets you will need for your project.

    - Game assets (3D models, textures, etc.)
    - Physical materials or electronic hardware
    - UI elements or designs
2. **Interactive media production**

    - Game Production
        - Game production pipeline overview
        - Unity 5: 2D Essential Training — Build a simple sidescroller game
        - Unity 3D Essential Training:
        - Creating Mobile games with Unity
        - Swift 5 Essential Training for iOS games.
    - App Development
        - iOS vs. Android — If you have a Mac, developing for iOS or Mac OS is typically easier because Apple's Xcode development tool includes limited visual design tools, but you will still need to program in Swift to one extent or another.
        - Xcode 11 Essential Training
        - Beginner's Guide to Web App Development — For advanced coders only.
    - Physical Computing
        - Arduino Learning Pathway (LinkedIn Learning)
        - Adafruit projects, guides, and shop
    - Physical Games

        There are many sites that will print custom boards and cards, as well as mail-away 3D printing services. Do some searching and contact your instructor for tips.

Proof of concept

The goal of a proof is to demonstrate that you can operate the necessary software, create needed assets, and show that you have a strong grasp of relevant production principles.

Produce a basic example of a realtime project in your chosen software production pipeline that demonstrates you are capable of manipulating digital assets and code. This should be an exported runtime application compatible with Mac OS or Windows, or video documentation of a functional device.

For physical games or interactive projects, produce a low fidelity prototype.

Audio Projects

Types of Audio Projects

- Podcast
- Audio tour or site-specific experience
- Experimental installation (something that explores the possibilities of sound and perception)

If you are interested in creating an audio-focused project, it would be good to include some visual component such as branding designs, supplemental images/video, documentation, or a user interface for accessing and distributing the work. Talk to your instructor for more ideas.

Production requirements

Depending on the type of project, you may need more or fewer steps than what are listed here.

1. **Asses Hardware Needs**

   ### Audio Recording Starter Kit

   - Microphone(s) — Here is a detailed overview of common microphone types.
     - Dynamic: Less sensitive, hold close to speaker, good for interviews in loud spaces.
     - Condenser: More sensitive, record far away sources (including background noise...)
   - Digital Audio Interface — Connect microphones to your computer; converts analog audio signals into digital ones. USB mics include a built-in version of this, but you'll get better quality with a truly analog mic and a separate interface box.
   - Portable recorder — All-in-one device with built-in mics! If you are on the tightest budget, you can manage an awful lot with one of these. Zoom recorders are industry standard and come at a variety of price points.
   - Headphones — Avoid anything with "bass-boosting technology" or earbuds. You want a nice even sound.
   - Speakers — Monitors or bookshelf speakers are the best bet; prioritize even sound reproduction over loudness or bass-boosting.
2. **Synopsis**
   - Write a short synopsis of the work.
   - Find examples of similar media to study and draw inspiration from.
3. **Script**

   For scripted narrative work, obviously write a script. Experimental or documentary work might not include this step.

   - Scrivener
   - Final Draft
   - Screenplay Formatter for Google Docs

1. **Sound recording**
   - Sound foley
   - Recording narration and actor dialogue
   - FreeSound — Library of Creative commons sound effects
   - Free Music Archive — Library of creative commons music
   - ZenCaster — Great tool for recording remote audio conversations between two people.
   - Beginners guide to microphone types
2. **Scoring or Original Production**
   - GarageBand — Simple MIDI instruments and editing.
   - Premiere Pro — Edit audio right in your video editor or export entire projects to Audition...

- Adobe Audition (LinkedIn Essential Training) — Dedicated audio editor, record and mix, easily interface with Premiere (no MIDI instruments)
- Ableton Live (LinkedIn Essential Training) — Great MIDI and recording suite, relatively cheap, great for electronic music.
- Logic Pro — Record and mix, MIDI instruments (especially ones that sound like traditional strings, brass, etc.)
- Pro Tools — Industry standard for recording and mixing; expensive.

3. **Mixing and Mastering**
   - Mixing — Balancing and dynamic adjustment for all channels.
     - Mixing and Buses in Audition
     - Adobe Audition: Mixing Music and Dialogue
   - Mastering — Refining the primary exported file.
     - Audio Mastering Techniques
4. **Distribution**

   You'll want a high quality source copy of your project, but if you're uploading your project to the web, podcast services, or physical playback devices, you will probably want a smaller file size.

   - Guide to sample rates and bit depth
   - Filetypes to Know:
     - WAV - Uncompressed, high quality, high filesize
     - MP3 - Lossy compression, low quality, loq filesize
     - FLAC - Lossless compressions, high quality, high filesize

Proof of concept

Demonstrate your filming or editing abilities with one of the following:

- Vignette: https://vimeo.com/337054827
- A sample scene or interview
- Video and audio example for an experimental project

Physical Installations and Objects

Digital tools offer many ways to shape experiences in the real world and work with physical materials in extraordinary ways. This page is for anyone building things, installing objects in a physical environment, or using digital fabrication techniques like 3D printing to create artworks or designs.

Example projects

- Physical art object(s)
- Installation or exhibition
- Detailed proposal for an exhibition
- Speculative installation
- Design-based community event or festival
- Curation of an art or design exhibition
- Public art or intervention
- Fabricated designs or prototypes

Note about design projects requiring fabrication equipment: If you are interested in using PSU Main Campus fabrication equipment including laser cutters, 3D printers, CNC Routers, water-jet cutters, etc., you must coordinate a time to visit, complete requisite safety training in advance, and schedule a time on the required machines. Contact your professor for more information. Depending on your location, it is often less expensive to pay for an object to be fabricated using an online service or local company rather than paying for travel and lodging to come to Penn State Main Campus.

Production requirements

1. **Research**
    - Evaluate previous events that were similar to this one
    - Identify stakeholders or exhibition locations
    - Research potential materials or fabrication techniques
        - 3D Printing
            - Shapeways — Mail order printing service
            - Recommended comercial 3D printers
            - RepRap — Open source design for building a printer
        - Plotters and Cutters
            - Recommended home cutters and plotters — These can cut paper and draw according to a digital design.
            - Ponoko — Mail order laser cutting and related fabrication
        - Electronics
            - Adafruit projects, guides, and shop
            - Arduino art projects
            - Physical computing examples

1. **Project goals**
    - How will you measure the success of your project?
    - What new skills or materials will you need to acquire?
    - Do you need the participation of outside parties?
2. **Branding, website, other event infrastructure**
    - Consider how to advertise your project if you want to attract a public (or online) audience.
3. **Identify a venue or location**
4. **Create a budget**

5. **Identify team members or volunteers if needed**
6. **Production of printed or fabricated materials, props and other objects**
7. **Create a call for participation, event registration, or other invitations for event attendance**
8. **Participate or observe hosted event or intervention**
9. **Event documentation and outcomes**
    - If you don't get a photo, did it really happen?
    - Good video documentation is hard, you may need multiple camera and microphones to get enough footage. See the video page for suggestions.
    - Phone cameras are pretty darn good these days, but it's still better to use a DSLR or Mirrorless camera if possible to get really stellar photos. Lighting may also be key.
        - Studio photography of small/medium objects

Proof of concept

Exhibition or public project: Create a detailed proposal including materials, budget, diagrams, and an outline of your production timeline.

Fabricated art or design object: Create a prototype or detailed digital mockup.

Product, service, UI/UX

This category could include real-world commercial projects, speculative design, or more in-depth research projects.

To participate in a real-world project, you will need to locate a client — a company, event, organization, group, etc. — that has a specific challenge. You can then work with the client to design a solution that meets a need or opportunity. Whether you are working with web and information technology, or 3D printing physical prototypes, many aspects of the design process will be similar.

Depending on the deliverable, you may want to explore related media pages for technical and process tips.

Types of product or service projects

- Functional mobile or web app
- High fidelity interactive mockups (UI)
- Speculative or discursive design projects
- Comprehensive user experience (UX) research
- Instructional design product
- Digital fabrication products or prototypes (handheld objects, furniture, wearables, clothes, toys, etc.)
- Physical computing or Internet of Things (IoT) device

Production requirements

1. Research, design thinking, and ideation
    - Design Frameworks
        - IDEO Design Kit
        - Stanford D.School
        - Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions
    - Specific UX Methods
        - Types of UX research tools and when to use them
        - To *understand* a problem
            - Interviews (see suggestions for user interviews)
            - Surveys (Google Forms, etc.)
            - Field studies
            - Data analytics
        - To *define* a problem
            - Themes and insights
            - Affinity Maps: A workshop-style method for organizing research findings and design ideas.
            - Competitor testing (notes taken while critically examining existing tools)
            - Empathy Maps: What does a hypothetical user feel, think, say, and do? Who are they?
            - Personas: Imagining specific hypothetical user biographies.
                - Counterpoint: Are personas a useful tool?
                - Focus on user needs not their biographical identities.
            - Journey Maps: What happens during the user's experience from awareness to desired outcome? (Includes activities outside of the digital app experience)
        - To *explore* a problem
            - Card sorting
            - User Flows: A flowchart depicting a subsection of the larger user journey, focusing specifically on the use of the software or tool.
                - Recommended Flowchart tools:

        - FigJam — Easy and powerful whiteboard app within Figma
        - Excalidraw — Simple app for flowcharts and wireframes, featuring a hand-drawn aesthetic.
        - Miro — Another digital whiteboard app
        - Post-its and paper!
      - Low-fidelity prototyping (paper or digital wireframes in Figma etc.)
  - Branding
    - Your project may or may not include high-fidelity designs; focusing on simple wireframes, user analysis, and functionality can be sufficient for a UX project. But if you are going to develop aesthetic visual designs, you might consider the brand's core values and messaging at this stage alongside your product's functional design.
    - For branding projects, complete a branding research document.
    - *Designing Brand Identity* by Alina Wheeler and Debbie Millman (PSU Library eBook)
    - Guide to Successful Bran Positioning in Your Market
  - Design Systems
    - Everything you need to know about Design Systems
  - Mobile App design
    - Mobbin — Gallery of real world mobile app screen designs.
    - PageFlows — Excellent gallery of user flow videos from apps and websites.
2. Prototyping and production

  - CAD modeling
    - Rhino3D (recommended)
    - SolidWorks(free access to PSU students)
    - AutoCad (free education license available)
  - Polygonal/Nurbs modeling
    - Blender, Autodesk Maya, Maxon C4D, Foundry Modo
  - Digital fabrication
    - 3D printing — Shapeways will print designs and mail them to you.
    - Laser cutting
    - Advanced fabrication: CNC Routing, turning, and milling, water-jet cutting (using fabrication equipment requires proximity to PSU Main Campus and coordination with facility operators in advance)
    - Device programming: Arduino
  - UI/UX Design
    - LinkedIn Learning UX Learning Pathway
    - Software
      - Figma: Web app for responsive UI design, interactions, prototypes, and collaboration.
      - Mockup: Web app for simple app prototypes and wireframes.
      - Excalidraw: Web app for simple wireframes and diagrams using a hand-drawn style.
      - Sketch: UI Design and prototypes; web app or MacOS.
      - Adobe Illustrator: Powerful vector editor
      - Framer: Web app for UI design and prototypes
      - Flinto: MacOS app for UI designs and prototyping; used in-house at Apple.
  - Product Mockups
    - Free Mockup: Photoshop templates for displaying 2D designs on business cards, t-shirts, etc.
    - Mockups Design: More Photoshop templates for product images
  - UX Research
    - A project in this area could take the form of a case study, video presentation, website, or other means of communicating in-depth research into a particular experience design.
    - Complete beginner's guide to UX research
    - How to write a UX case study
    - Collection of case studies
    - More UX case studies:
      - Cujo app and branding for home security
      - [Uber] app design

        - Red Pen design feedback app
    - Data Visualization Learning Path (LinkedIn Learning)
- Web design and development
    - Website dev tools and technology: VS Code, Github, Git Pages Tutorial 1, Git Pages Tutorial 2, Webflow — See web page for more.
    - **Everything list:** Extensive list of web tools and technology
- App Development
    - FlutterFlow.io – Visual low/no-code app development software
    - Xcode — Apple's development suite for iOS; generally easier than developing for Android as it has a visual editor in addition to coding. Still a ton of work to program anything complex. Stick to something simple if you're new to this.

3. Testing and analysis

    - User testing
        - Conduct a survey online
        - Get your friends to test your prototype
        - Use *specific* and structured questions to get useful feedback.
    - Performance testing
    - Accessibility evaluation
    - Heuristic evalution: comparing your design to industry benchmarks for usability. The 10 Usability Heuristics from the Neilson Norman group are commonly used.
4. Iterate

    - Keep refining and testing ad infinitum!
    - Your project might never advance beyond low-fidelity prototypes, and that could be fine!
    - High-fidelity designs should usually only be made *after* a low-fidelity prototype. One option for limited time is to create high-fidelity (fully-designed) designs for only a limited number screens or sections, to depict the UI without a comprehensive high-fidelity prototype.

Proof of concept

The goal of a proof is to demonstrate that you have a strong grasp of relevant research, design, fabrication, and/or development principles.

- For a product or service, a low or high fidelity mockup would demonstrate the essential functionality of your idea.
- For a research project, you could collect some test data and compose a brief presentation of your research, or demonstrate your plan to collect primary data and outline any testing or visualization strategies.

Video Production and Photography

Types of video projects

- Narrative short film — Something with characters and a plot.
- Experimental film — Examples on vimeo.com
- Documentary short
- Animations — See Animation page ☺

For videos, an acceptable duration depends on the nature of your project and how refined the visuals are. A low-fidelity animatic could be quite long, and a fully animated high-fidelity video would likely be much shorter given the intense time and labor required for professional animation. It's generally better to have a really impressive 30 seconds than a mediocre 5 minutes.

Types of Photography Projects

For long term projects, you would likely be creating a series of photos, that could be collected in formats like:

- Physical exhibition
- Virtual exhibition
- Digital/Print publication

Your photography could be journalistic, artistic, staged, or blended with other media.

Production requirements

Depending on the type of project, you may need more or fewer steps than what are listed here.

1. **Assess Hardware Needs**

   For some projects, you may need access to professional video and audio equipment, though a lofi aesthetic or concept relted to everyday devices might work well with phone cameras. A smartphone camera limits you to very wide angle lens, but filmmakers like Stephen Soderbergh have shot feature films with them! But if you're interested in these producing this kind of media professionally, it is probably worth investing in some hardware.

   Student discounts are offered at B&H and Adorama and many manufacturers offer refurbished gear at slight discounts (as does B&H). You can also find kits that package the essential items together for a reduced price.

   Video Production Starter Kit

   - DSLR or Mirrorless Camera — offers greater depth of field and lens customization than a camcorder, and finer control of exposure, frame rate, and settings, than a smartphopne.
   - Tripod — Required for most professional video work.
     - Smartphone tripod — If shooting with a phone, you can still get a tripod!
   - Shotgun (Hypercardiod) Microphone — Best for directional recording if your subject is speaking; Rode makes good ones for DSLR cameras.
     - For recording sound effects or voiceovers, see the recommendations on the audio page.
   - Lighting: a reflector board or piece of white foamcore can reflect light towards your subject, but electric lights on stands are best for stationary indoor photography.
2. **Discover and Define**
   - Brainstorm ideas and research relevant work or subject matter.
   - Collect inspiration images or clips to show the visual style you're aiming for.
   - Write a short synopsis of the video work.

- Creating mood boards
- InVision (collaborative inspiration board tool)

3. **Storyboarding**

   Make a storyboard! (Even if you use stick figures). This helps you plan your shots and visualize things. Number your scenes and shots and check them off during production (e.g. you forgot to show the character putting on the hat—oops!).

   This is a great place to decide on your aspect ratio (traditionally 16:9 but it depends on your distribution format and creative goals).

   - Film Directing Shot by Shot by Stephen Katz — PDF Excerpts from a great book, including many storyboard examples and techniques, common shot types, and staging tips.
   - Common shot types — A quick summary of shot types like "close-up" and "wide shot" that make up the grammar of films, comics, animation, and other cinematic work.
   - Storyboarding for film and animation
   - Storyboard Templates
   - Storyboarder App

   An optional step could be to create an **animatic**, in which you edit your storyboard images into a video that becomes a protype of your film. This can help discover issues with narrative clarity, pacing, and identify the needed length of each shot. For examples and resources about animatics, see the animation page.

4. **Script**

   For scripted narrative work, obviously write a script. Experimental or documentary work might not include this step.

   - Scrivener
   - Final Draft
   - Screenplay Formatter for Google Docs

5. **Shooting** There are very specific formatting and syntax rules for professional screenplays, but depending on your professional goals, you can write a script however you want...

   - Film Basics 101 — Some quick tips on choosing your shots
   - 15 Essential camera shots, angles, and movements
   - PRO TIP: Make a shot list ahead of time.

6. **Sound recording**

   The built-in mics on your phone and camera are terrible; do not use them—especially outdoors where you will record nothing but wind. Getting a good mic is one of the fastest ways to make your video seem more professional (see gear recommendations above).

   Sometimes you can plug a good mic directly into your camera, but it may also be useful to record audio separately on a portable audio recorder and sync the audio with the video while editing. Premiere and Final Cut have tools to automate this, but you can also have your subject clap their hands or use a clapper to manually sync audio.

   See the audio page for more.

   - Sound foley
   - Recording narration and actor dialogue
   - FreeSound — Library of Creative commons sound effects
   - Free Music Archive — Library of creative commons music
   - ZenCaster — Great tool for recording remote audio conversations between two people.
   - Beginners guide to microphone types

7. **Scoring**

   With some MIDI software, it's pretty easy to make some ominous synth tracks or arpeggiated melodies, but you can also find creative commons music to use in your projects with attribution.

   MIDI is a standard type of virtual instrument (i.e. digitally creating sounds on your computer); some audio programs are geared toward recording analog sound.

   - GarageBand — Simple MIDI instruments and editing.

- Premiere Pro — Edit audio right in your video editor or export entire projects to Audition...
- Adobe Audition (LinkedIn Essential Training) — Dedicated audio editor, record and mix, easily interface with Premiere (no MIDI instruments)
- Ableton Live (LinkedIn Essential Training) — Great MIDI and recording suite, relatively cheap, great for electronic music.
- Logic Pro — Record and mix, MIDI instruments (especially ones that sound like traditional strings, brass, etc.)
- Pro Tools — Industry standard for recording and mixing; expensive.
- Audacity — A free open-source audio editor. It's pretty simple, so use Adobe Audition if you can.

8. **Effects, editing, compositing, rendering**

   - Editing
     - What is a non-linear editor? (NLE)
     - Abobe Premiere Pro Essential Training (LinkedIn Learning)
     - Basic cuts (Film editing crash course)
   - Effects
     - Adobe AfterEffects — Add complex animation or special effects to Premiere clips or export standalone video.
     - DaVinci Resolve (LinkedIn Learning) — An NLE but most commonly used for color grading.
   - 3D Compositing
     - Natron
     - Nuke
     - Blender compositing

9. **Audio Editing and Mixing**

   Editing refers to placing and layering sounds in your timeline, including sound effects, music, and vocals; mixing is the process of getting them all to sound good together (\now you can show off to your friends at the Oscars).

   You can do all of this in a video editor like Premiere, but you can do some fancy stuff like noise removal if you export clips or your entire timeline into Audition.

   - Mixing Audio in Audition and Premiere
   - How to export Premiere Audio to Audition

10. **Exporting**

    It's a good idea to test your workflow entirely with a proof of concept (see below) to make sure the final product looks the way you expect it to. You don't want to spend two hours rendering your video at midnight and have it turn out all squished and weird looking.

    Video files include a container (a.k.a. file extension) and a codec (specific algorithm used to encode the frames of the video).
    Containers:

    - MOV and MP4 — Great, often what your video files are straight off the camera, and good for exporting high-quality master files.
    - WebM — For video on the web; use this to get really small file sizes if you need to put your video on a website without something like YouTube or Vimeo. MP4 can also be used for this. Websites like Converterpoint are your best bet for generating these files; they'll get smaller file sizes than Premiere.

    Codecs:

    - h.264 and h.265 — Lossy, compressed video; h.264 is the standard codec used by most cameras, phones, and web players. It's successor is newer and will get smaller filesizes relative to quality, but may not be supported in some contexts. This is probably fine for most contexts.
    - ProRes — Lossless, compressed video; this will give you better quality but potentially huge file sizes. Only use this for your main source copy of the project or potentially projecting in a theater. Not for online distribution. There are a few types of ProRes depending on your quality/filesize desires.

    Frame Rates:

    Typically stick with the frame rate of your source footage, though it is possible to mix frame rates within a single timeline.

    - 30fps or 29.9fps — Standard video frame rate; can give a slightly "day time television" look to things.

- 24fps — The standard for film; use this for a slightly choppier, more cinematic look.

Frame Size

- 3840px x 2160px — 4K; probably overkill unless you have a 4K monitor or projector to display your work on. Useful if you want the freedom to crop shots without losing quality.
- 1920px x 1080px — Standard HD
- 1280px x 1920px — "720p" HD; sometimes nice for web uploads.
- 640px x 480px — SD; hilariously small and to be avoided unless you're putting the video on the web.

Proof of concept

Demonstrate your filming or editing abilities with one of the following:

- Vignette: https://vimeo.com/337054827
- Film a sample scene or interview
- Video and audio example for an experimental project

Web Design and Development

Many professionals work primarily as a designer (visual layouts and styles) or a developer (building the functional website or web app through coding). For smaller projects, you can do it all yourself, and there are some options for code-free development, but it's worth considering what skills you want to focus on. Some projects may function better as interactive prototypes or speculative mockups, which you can read more about on other pages.

You might also create a website to supplement or present other types of work, such as illustrations, podcasts, or photography.

Types of Web Projects

- Landing page or informational site
- Business or eCommerce site
- Experimental site
- Net art
- Interactive storytelling
- Web app

Production Requirements

1. **Research**
    - Brainstorm ideas and research relevant work or subject matter.
    - Collect inspiration images or clips to show the visual style you're aiming for.
    - Write a short synopsis of narrative work.
    - Creating mood boards
    - Site of Sites — Great curated selection of websites
    - Godly — Trendy gallery of websites
    - SiteInspire — Gallery of websites, filter by type
    - SeeSaw — Another great gallery of sites.
    - Nice Every Nice — A gallery of UI patterns and components (e.g. hero sections, navigation...)
    - Dribbble — Community design showcase, usually mockups and not actual sites.
    - Awwwards — Curated elaborate websites
    - One Page Love — Curated collection of one page websites.
2. **Outline Content and Wireframe**

    Prepare content like text and images prior to designing so you know what you're working with; think about how to organize content logically among pages or sections. A wireframe should be low fidelity: sketched on paper or in design software with labeled boxes.

    - Wireframing Best Practices (Practical UX Weekly on LinkedIn Learning)
    - Illustrator for UX Design (LinkedIn Learning)
    - Wireframing in Adobe XD (LinkedIn Learning)
    - InVision Prototyping Tool — Turn sketches or screen designs into an interactive prototype.
    - How to Create a UX Sitemap — Use index cards or a digital equivalent to map out your content.
3. **High Fidelity Mockup**

    Compared to a simple wireframe, a mockup should look exactly like the finished site. This gives you a blueprint to refer to while developing and lets you experiment with layouts and visual styles faster than you can while coding. It also lets you get feedback early in the process.

    - Illustrator for Web Design
    - Figma: Web app for responsive UI design, interactions, prototypes, and collaboration.

        - Tutorial of using auto-layout for basic card component.
    - Sketch: UI Design and prototypesl; web app or MacOS.
    - Framer: Web app for UI design and prototypes

1. **Development**

    Penn State students have free personal web hosting offered through the university. You have to request for your server space to be activated, and you can host static websites at a domain like "https://personal.psu.edu/user123"

    If you want a more professional-looking domain, or wish to use a dynamic CMS like Wordpress, you'll have to buy your own hosting plan and domain.

    - Web hosts and registrars
        - Free JAMstack Hosting for Github repos
            - Typically used with a static site generator (see below) but can host any static HTML files.
            - Netlify
            - GitHub Pages
            - Cloudflare Pages
        - Domain Registrars ($)
            - Namecheap — Domain registration only
        - Shared Hosting ($$ – $$$)
            - Typically includes domain registration; use an FTP client to manage files
            - BlueHost — Good all-purpose host
            - Siteground — Slightly fancier and more expensive
            - Green Geeks — Solar powered servers! ☀
    - Static vs. Dynamic Sites
        - General overview
        - Explainer video
    - Static Site Platforms
        - Hand-coded HTML
            - Only for simple sites with a few pages. To use page templates or modules, try...
        - Static Site Generators (requires command line use)
            - Introduction to Static Site Generators
            - Eleventy
                - Beginner's Guide to Eleventy — Covers basics of git, npm, and static site generators
                - 11ty Rocks!
            - Jekyll
            - Hugo tutorials and resources
    - Dynamic Content Management Systems (CMS)
        - Wordpress — Free, but requires hosting with database access.
        - Beginner's Guide to Wordpress
        - How to Install Wordpress Locally with MAMP
        - Where to Learn Wordpress Theme Development
        - Become an Advanced Wordpress Developer — LinkedIn Learning Path
        - Some great starter themes
            - These are essentially blank themes designed for making your own themes in a modern development environment.
            - WP Rig
            - JointsWP — Built on Foundations framework
    - Code-Free Development
        - Webflow — A powerful visual development tool. Contact your instructor to inquire about free educational access to the full app.
            - Contact your instructor to be added to the free PSU Webflow Team account (equivalent to a premium account). You will lose access to this at the end of the course, but can export your work beforehand.
            - Webflow also offers a massive discount for students if you want to just use a personal account. Not sure how long you can keep that after you graduate.

        - Framer — Design sites with a Figma-like canvas interface; does not have a student plan.
        - Squarespace, Wix, Weebly, and Carrd — These tools are meant for non-designers; they are more limited than anything listed above. If you want to use these, you should emphasize the content of the site as part of your creative work since your web design would be largely constrained by templates.
            - Everything list — Extensive list of web tools and technology

2. **Deployment**

    - Essential checklist:
        - Check all text for spelling
        - Optmize images for fast page loading
            - Squoosh
            - Optimizing images in Photoshop
        - Check contrast of text and background colors
        - Create a favicon
        - Check for broken links
        - Check your site in multiple browsers and screen sizes.
    - For real world sites:
        - Add meta tags for search engines.
        - Create social meta tags and share images.
        - Set up tracking with Google Analytics or Fathom
        - Wordpress launch checklist
        - Check your page speed
        - Check your search engine optimization (SEO) and ensure your site appears in Google searches.

3. **Documentation**

    - Take some nice screenshots!
    - Or record your screen to document animated content, or take us on a quick site tour.

Proof of Concept

A high-fidelity mockup or interactive prototype will be a good proof-of-concept.

If you're learning a new development tool, creating a simple test page would also be a good idea (likely running locally on your computer).

Branding Research Document

Are you beginning a brand design project? This page will help you get started.

Read this article from UXstudio about how to conduct brand research. If you want more examples and guidance, check out *Designing Brand Identity* by Alina Wheeler and Debbie Millman (access online through PSU Library).

Then take a look at your own company, product, or whatever you're designing a brand for. Follow the steps below and prepare this information in a blog post or standalone document. If you want to demonstrate your graphic design skills, you can put this info into a PDF made in Illustrator or Figma that feels visually styled and "designed."

Summary

What is the company, group, or entity whose brand you are designing?

Rationale

Why does the brand need a new design or identity?

Competitor Analysis

List competing brands in your subject's area, including examples of their visual branding or design.

Value Proposition

Identify what your client can offer customers or users. What sets them apart from competitors?

Brand Associations

What words, beliefs, values, or ideas come to mind when you think of the brand? You can interview additional people to collect more data and make your cases more persuasive.

Inspiration Board

Collect 10+ preliminary images of graphic design, typography, and branding that point toward your vision for the brand. Browse design galleries like Dribbble, Logo Lounge, Behance, or design books for specimens.

This page might be useful if you're developing a narrative project, such as a:

- Storyboard
- Animatic
- Video game
- Comic
- Augmented reality game (ARG)
- Immersive multimedia artwork

For any of these, you could prioritize visual design and illustration — in which case, you could use something like ChatGPT to generate a serviceable story and get right to development. But if you're sincerely interested in world-building, crafting compelling characters, and engaging stories, then read on!

See the animation page for examples and guidance on creating storyboards and animatics.

Resources

- **Books:**
  - Story: Style, Structure, Substance, and the Principles of Screenwriting by Robert McKee — A great book on narrative arcs, character development, and structure.
  - Save the Cat!: The Last Book on Screenwriting you'll ever need by Blake Snyder — Another popular screenwriting book.
  - Meander, Sprial, Explode: Design and Pattern in Narrative by Jane Alison — A fascinating book about non-linear and unusual "shapes" for stories.
  - Understanding Comics by Scott McCloud — The definitive guide to the grammar and storytelling possibilities of comics. (Should really be required reading for anyone involved in picture-making or creative work.)
- **Screenplay Examples**
  - The Script Lab — Collection of film and TV scripts.
  - Studio Binder — A collection of movie screenplays.
  - Guide to screenplay formatting

1. Exploration

Make a list of films, shows, books, comics, or other narrative media that you love — things that might be neighbors to your own work in genre or tone. What are the visual aesthetics of these? The central character motivations? The genre conventions or tropes?

What can you bring to the story that's uniquely yours? Informed by your own experiences, passions, or knowledge?

How can you turn things on their head? If you have a story idea, what is something totally unexpected or problematic that could occur?

Generative AI tools like ChatGPT and Claude can be very helpful at this stage. Consider using chatbots to:

- Ask you provocative questions after sharing your initial ideas or influences.
- Generate story pitches or summaries based on your vague ideas — see what sounds cool and what doesn't.
- Help with research into locations, technology, cultures, etc.
- Provide feedback on your writing or ideas.

2. Outline

As you collect inspiration and ideas, begin to form an outline of the overall story and/or individual character arcs. There are many approaches to writing a story, but I think the strongest ones start at the character level rather than the overall "plot."

For each character, make a table like the one below to flesh them out and discover driving forces or problems that might inform the overall story.

- Character Name:
- Physical appearance:
- Personality:
- Biography/Backstory:
- What do they want? (\ surface motive, what they tell themselves)
- What do they need? (\ true motive, may be unconscious)
- What's their problem? (if there's no problem in their life, the story is over before it begins)
- What do they value above all else?
- Beginning state: (how they are at the *beginning* of the story arc)
- End state: (how they are at the *end* of the story arc)

To outline the overarching story, approach it from the **act** and **scene** levels. The overarching story should have a "beginning state" and an "end state," with characters and events progressing and changing along the way. Traditionally, each act and scene should also have such an "arc", with a turning point, or moment, when a character says or does something pivotal.

- Act 1:
  - Beginning state:
  - Turning point:
  - End state:
  - Scenes
    - Scene 1:
      - Beginning state:
      - Turning point:
      - End state:
    - Scene 2:
      - Etc.
- Act 2:
  - Etc.

Shorter stories might only have a single "act", and there are other shapes and structures to discover (see *Meander, Sprial, Explode* above), but this is a reliable format used in many films and books. Pay attention to the next movie you watch and see if you can detect the "turning point" of a given scene. What are the "beginning" and "end" states for the protagonist?

Some writers might outline the story to a lesser (or greater!) extent, but following this format will let you get feedback as you go. If you just start hammering it out on a blank piece of paper one chapter at a time, big picture questions may not be addressed until it's too late. Within the compressed time of a class project, you may not fully develop your story, but you can bring it into focus enough to assess the major themes and craftwork.

3. Write

Google Docs and Word are both great. Sharing a cloud document is usually best for receiving feedback from your instructor.

There are more industry-specific screenwriting apps too, that can help with accurate formatting. Such as:

- Scrivner
- Final Draft
- Writer Duet
- FadeIn

For comics, storyboards, and animatics, writing a script is still useful because its faster than drawing pictures. You can describe the visuals within the script like this:

SARAH: "No, don't go in there!"

JASON walks down the steps into the basement and sees a giant creature writhing in the shadows

JASON: "What the—"

4. Edit

As you share your work-in-progress, using comments, annotations, and history-tracking is very helpful.

You will also surly want to go back to early scenes and edit them as you develop later pieces of the story.

Portfolio Tips

A portfolio of work is essential for any creative field, to demonstrate your skills and interests. We'll break this down into two parts: assembling materials and creating a portfolio website.

1. Assembling Portfolio Materials

You should prepare images and videos of your work so you can have your portfolio materials ready to include with application to jobs, grants, or exhibitions.

Portfolio Media

Collect 10-20 examples of work that illustrate your skills and interests. A good portfolio can include examples of diverse media, but should show a cohesive voice and perspective. Showing similar themes, subject matter, or style can help tie your work together.

Images

- Prepare a variety of image sizes when exporting work, because different applications will ask for different things.
  - **High-resolution:** A PDF for vector-based work, or a 300ppi large size image for raster images. Consider how large you might print an image and check it's dimensions in Photoshop.
  - **Large web size:** 1920px x 1080px (or similar depending on your aspect ratio); the largest size you'll typically need for websites or anything viewed on a screen.
    - For your website, optimize the image in Photoshop or Squoosh.
  - **1000px wide:** A medium-size image that is often asked for in applications.
- Tips on photographing paintings and 2D work
  - Studio photography of small/medium objects
  - For apps, websites, videos, or other interactive work, take screenshots that illustrate the core functionality and most visually exciting parts of your project.

Videos

- **Documenting physcial works or events:** definitely get a tripod, and if recording audio, get a microphone. See video and audio pages for more.
- **Edit a short trailer:** It's good to have lots of footage to draw from, but juries, hiring boards, and online audiences don't want to watch a twenty minute movie. Edit a 1-2 minute video that shows the gist of your work. This goes for documentation of physcial work or digital time-based or interactive work.
- **Record a tour of screen-based work:** Use Quicktime or other screen recording apps to record yourself navigating websites/apps/games/coding projects and the like. You can always edit it down later.
- **Add a soundtrack:** Silent videos can be boring, so consider adding some nice instrumental or ambient music from the Free Music Archive

Reels

For filmmakers and animators, it's expected that you will have a short trailer documenting your work *overall* in addition to specific projects. A reel should feel exciting and in line with the style of your work, edited like a film trailer to advertise your abilities and breadth of work.

- Examples of animation and VFX reels
- Film and videography reels
- Miscellaneous reels on Vimeo

Interactive Media

- Websites, games, and prototypes can be made available online for people to view directly.

Written Materials

- **Artist Statement or Design Philosophy:** Depending on what creative field you consider yourself in, you would title and skew this differently, but essentially you should have a brief written summery of your professional interests.
  - Write about your ideas and process, and use examples from your work as illustrations.
  - Length: Definitely less than one page. 2-3 paragraphs is good, though you may want a separate extra short version that is a single paragraph.
  - Name drop: Include references to specific artists or designers who inspire you or relate to your work; include names of specific movements or styles to show you are familiar with the history of your field.
  - Artist Statement Guidelines
  - UNSCA
  - Moma Art Glossary
  - Technical Design Terminology
  - Example of a needlessly complex statement and it's translation
  - International Art English
  - The Guardian: A user's guide to artspeak
  - How to Write an Artist Statement
  - Sample Artist Statements
  - Artist Statements We Love
- Media Checklist
  - Prepare written captions for your main portfolio item, so it's ready to go and adapt for applications. Here's an example:
    - ***You are what you eat,* 2020, video installation.** This project was a generative video projected onto a moving food truck that incorporated archival film footage and contemporary news clips to produce abstracted commentary on industrial agriculture.
- Curriculm Vitae (CV)
  - A **CV** includes everything you've ever done that is relevant to your career; a **resume** is a shorter version that is geared to a specific job application.
    - CV Guidelines from the College Arts Association
    - As a designer, this is an opportunity to highlight your design skills with excellent typography and organization, but don't go crazy. Keep color to a minimum and ensure that it looks good if printed in black and white.
    - Prepare a PDF in Word or InDesign, but you may also want to include some of this information on your website as live web text.

2. Portfolio Websites

Recommendations are organized according to how much experience you have making websites.

You *could* create an account on something like Behance, but people will take you more seriously if you have a personal website like "YourName.com".

Cost

Most of these options cost around $100/year. Shared hosting providers like Bluehost will typically give you the first year at a much reduced price, but long term, you should expect to pay more. No-code tools will charge a similar fee, and can also lock you into that ecosystem (e.g. if you build a Squarespae site, you can't move it somewhere else, so you're stuck with whatever they want to charge you).

A much cheaper option is available if you're willing to do some coding and web development. Scroll all the way down to the section about **static site generators** which can be run on largely free hosting services, with the only cost being to but a domain name.

For Beginners

The following web apps are for non-designers, so they are more limited in terms of customization and advanced features. They're fast an easy to use, but make it clear that you are not a web designer.

- Squarespace
- Wix
- Weebly
- Carrd (one page sites)
- MMM.page

For People with Some Web Experience

- Webflow
  - This is another web with a GUI, so you don't need to code, but you do need to understand CSS properties for layout and design. The plus side of that is that your site can be very customized and unique.
  - Downside: More expensive than some options.
  - Includes CMS tools for custom post types and back-end blogging etc.
- Wordpress (with an existing theme)
  - Choose a free or premium theme: you can customize basic things like colors and fonts, and add in custom CSS for more advanced things, but you'll be primarily relying on the layout and functionality of your chosen theme.
  - Beginner's Guide to Wordpress
  - You'll need a domain name and a server that supports databases to install Wordpress— but that means you can shop around for hosting and can move your site at any time. Some of the options above lock you in to hosting with the company providing your visual design tool.
    - Namecheap — Domain registration only
    - BlueHost — Good all-purpose host
    - Siteground — Slightly fancier and more expensive
    - Green Geeks — Solar powered servers!

For Web Developers

If you want to work in web development or as a freelancer, you want an awesome highly customized website to demonstrate your abilities. These more advanced platforms can also be a great learning opportunity, but will require a lot of time and Googling if you're learning something new.

- Wordpress (custom theme)
  - Building a theme from scratch requires working with PHP, but if you're familiar with HTML and CSS you can probably figure it out one step at a time.
  - Starter Themes: these are essentially blank themes designed for making your own themes in a modern development environment.
    - WP Rig
    - JointsWP — Built on Foundations framework
  - Beginner's Guide to Wordpress
  - How to Install Wordpress Locally with MAMP
  - Where to Learn Wordpress Theme Development
  - Become an Advanced Wordpress Developer — LinkedIn Learning Path using WP Rig
- Static Site Generators
  - This is by far the **cheapest option** for a website! Use Netlify or Vercel and you only have to pay for a domain name. (So

~$10/year instead of $100). These hosts will charge you more if you exceed a certain amount of traffic to your site, but that's usually not an issue for personal sites.

- These use Javascript to ingest file (e.g. Markdown) and transform them into static HTML files, allowing you to use page components (e.g. navbar) and variables and all kinds of cool stuff. Read more on the web design page.
- Introduction to Static Site Generators
- Eleventy
  - Browse Starter Projects that you can close and adapt for your own needs.
  - Try the Eleventy template on Glitch.
  - Read a beginner's tutorial for Eleventy development.
- Jekyll
- GitHub Pages — Hosts projects on GitHub.io
- Hugo

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