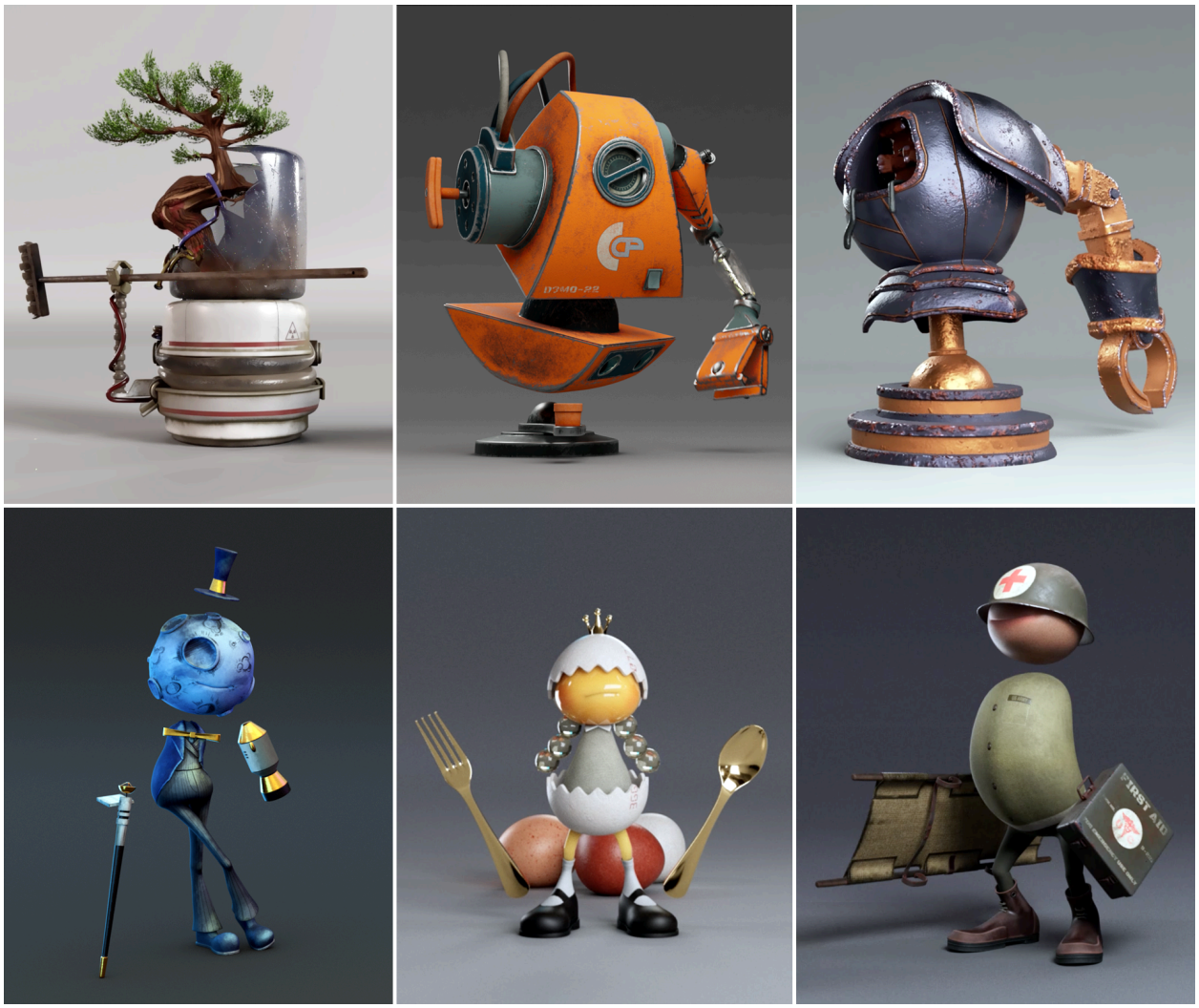
DIGITAL DESIGN STUDIO I **DD 263**



“To be successful in this field, you need to become a problem solver with good observation skills and a desire to create things. You never stop learning in this field.”
— William Vaughan

"Our movies don't get finished; they just get released.”
— John Lasseter of Pixar

Studio meets on: Mon/Thurs 1:00 PM – 5:20 PM Weston Hall 7th Floor Studios Prerequisites: AD 111, AD 112. Pre or Corequisites: AD 150.	Instructor: Camerun Hannah Pronoun: He/Him camerun.hannah@njit.ed

What is this course about?

This course builds toward advanced 3D modeling and intermediate animation concepts. Topics to be covered include:

- *Animation* – Approaches to both mechanical and character animation; focus on key-framing methods and rigid body simulations; emphasis on the 12 Principles of Animation; the creation of mechanical and character rigs with animation-friendly controls; introduction to a TEA sequence (Thinking > Emotion > Action) for character animations.

- *Modeling* – Emphasis on polygonal modeling tools and quad workflow that build upon the previous skill set. Advanced development of detailed polygonal modeling skills and stylized design aesthetics.

- *Texturing* – Development of UV texturing skills and concepts; UV mapping techniques, the UV Editor and its tools; the use of, and adherence to a color palette; masking and procedural texturing in Adobe Substance 3D Painter, and its integration with Arnold/Maya.

- *Lighting, Rendering & Post* – Lighting and rendering techniques in Arnold/Maya; compositing techniques.

What can I expect to learn?

This course will:

1. Expand the student's appreciation, creativity, and control of visual storytelling.
2. Provide proficient (and advanced) skills and techniques in polygonal modeling, UV unwrapping, texturing, rigging, animation, lighting, and rendering.
3. Examine staging principles and visual narrative design as they relate to 3D computer art, including camera angles, framing, and the use of color.
4. Enhance the student's use and appreciation of pre- and post-production.
5. Investigate advanced problem-solving approaches to 3-D animation.

What book and other materials do I need?

Required Software:
Once imaging has been completed during our first meeting, and only If necessary, make a new account or access your account, provide proof of student status, and download the **free** academic versions (*not* the "trial" versions) of:

- **Autodesk Maya** (2024 or 2025): https://www.autodesk.com/education/students
- **Adobe Substance 3D Painte**r: https://substance3d.adobe.com/education/

Recommended Software:

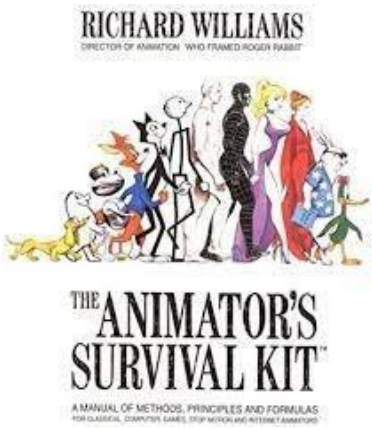
- **Adobe CC**: (Photoshop, Premiere, Media Encoder, After Effects)

Substance Resources 2024: 13000+ Substance Materials
https://drive.google.com/drive/folders/13ssgXmt4P4Y1UIw8SN6iPLaWBuzSQM7r?usp=sharing

Other:

- Students are *required* to back up their work at all times. “Losing” files is avoidable. Having a “corrupt” file, while unfortunate, is a very real occurrence when working in this field. So be forewarned: it is not an excuse for tardy assignments. Save often, save *incremental* versions, and back up your work!
- (Digital) Sketchpad, pen, and pencils – sketches and mood boards are a vital part of any brainstorming and iterative design.
- Peer instruction from fellow students.

Recommended (but not required):



The Animator’s Survival Kit
Richard Williams
ISBN-13: 978-0571202287

How will my work be graded?

Diligent, *timely* work is essential. You must put thought, effort, and care into your assignments to be successful. It will be apparent if you have rushed your work.

When contacting the professor for help, *always* include/attach the most recent scene file and explain your issue. If a Vimeo tutorial is unclear, please note the video number and the moment on the timeline at which things became confusing. However, do not expect the professor to respond to requests made the night before a project is due. At that point, if you cannot solve the issue on your own, you must take the late grade deduction to submit completed work.

Students are expected to make productive use of the extensive “in-studio” lab time that will be provided. It is also expected that students put in a base number of hours of work every week *outside* of class time. To this end, students will show and report their progress each week. However, please note that simply "doing *some* work" does not entitle a student to pass the class (let alone achieve a particular grade). Technical skill, aesthetic quality, and demonstrating that they have met *all* the learning goals are integral.

Attendance is an explicitly mandatory component of ALL on-campus/location-based classes for ALL students in the School of Art + Design. For this studio, the penalty is: after three unexcused absences students may be docked one-half grade for each subsequent unexcused absence (see Attendance). Missed classes will negatively impact a student’s work, progress, and final grade. So will lateness or partial attendance at any class. Early departure(s) from, or late arrival(s) to class will automatically count as ⅓ of an unexcused absence. Above one hour will be considered equal to ½ of an unexcused absence. Absences that cover more than half of the class meeting will be calculated as full unexcused absences.

If you are absent, it is *your* responsibility to catch up *promptly* with the class by reviewing pertinent Vimeo demos and/or requesting classmates to review the material with you. Do *not* expect the instructor to repeat the demonstrations and lectures you missed or spend hours tutoring you privately. Be sure, however, to ask for any handouts or assignments you may have missed.

If you find that you are stuck and not progressing, please speak to me *right away*.

Evaluation and grades are determined based on the following considerations:

Grade weight	**Grading scheme**
Assignment 1: 10% Assignment 2: 15% Assignment 3: 20% Assignment 4: 10% Assignment 5: 15% Assignment 6: 20%	A = 93-100% B+ = 87-93% B = 80-87% C+ = 75-80% C = 70-75% D = 60-70% F = below 60%
Professionalism / Participation: 10%	
Total: 100%	

* Professionalism / Participation refers to the degree of seriousness, immersion, and commitment you bring to your work. It includes timely attendance, meeting assignment deadlines, participating in class critiques, remaining engaged at all times, and contributing constructively to a safe learning atmosphere. It also includes any in-class assignments.

By its very nature, professionalism includes:

1. Consistently meeting deadlines.
2. Submitting completed work.
3. General time management (including constructive use of in-studio lab hours).
4. Commencing work on a project as soon as it is assigned.
5. Demonstrating progress at each class (and chronicling it in weekly reports).
6. Seeking feedback on your work to incorporate needed adjustments and improvements.
7. Following instructions *promptly*.
8. Attendance at all classes – on time and until the scheduled end time.
9. Timely, if not redoubled, effort to catch up on any missed instruction.
10. Demonstrating both leadership and good cooperation when working within a team.

Each assignment/project will be evaluated using the following criteria:

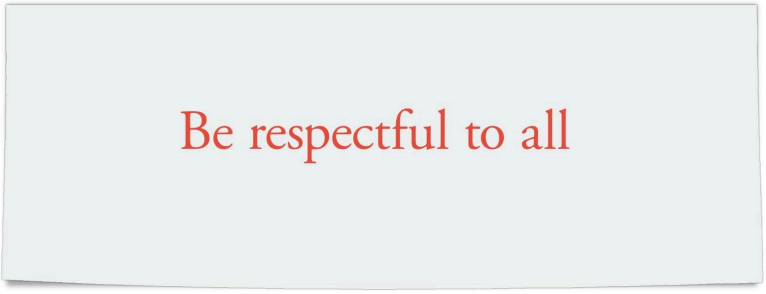
- Planning & Research
- Creativity & initiative
- Technical complexity
- Technical quality
- Artistic merit
- Adherence to project guidelines

A full rubric will be provided when the assignment/project is handed out.

Values of quality, aesthetics, taste, etc., are based upon the instructor's judgment of the work produced, the effort employed, and the total result achieved – as well as progress throughout the semester.

To receive full credit, all assignments/projects are due on time. Most often, submissions will be accepted up to one class meeting after the due date for a reduced letter grade. Work handed in after that will not be accepted and will be worthy of a zero for that assignment. However, do not hand in an incomplete project at the original deadline. Always take the late grade and complete the requirements – or fulfill as much as you are able.

Digital Design Submission Requirements & Portfolio Considerations:
SIGGRAPH's annual conference includes the Faculty Submitted Student Work Exhibit. This is a double-curated exhibit seen by many professionals at the biggest computer graphics conference. Submitted work must be conceived, designed, and created by the student. While using the latest tools to enhance a design or speed a process is encouraged, the focus of any visual narrative must be original. Should their work be accepted, students can add this accomplishment to their résumé and include the selection laurels in their portfolio. To have their work considered, students must complete and return a signed version of the provided FERPA form (download link here). Final work must also be at HD resolution (16:9): 1280 x 720 or 1920 x 1080.



I intend for students from all backgrounds and perspectives to be well-served by this course. The diversity students bring to this class will be viewed as an asset. Your suggestions are encouraged and appreciated.

In this studio, there are many opportunities for lively discussion and debate. However, there is no place for rude or derogatory remarks. When you speak you must speak respectfully of all people – including your peers and your instructor.

Your peer's work/efforts are neither "good" nor "bad". Also, whether you "like" or "dislike" their work is – frankly – irrelevant. We must focus solely on whether a particular design "works" or "does not work". The only valid exclamations are yes, no, and WOW! And no matter which one of these we choose, we must then try to define *why*.

I want you to succeed!

Yes! I want each of you to be successful in this studio. I want you to make work that inspires you and your peers. I want you to push me and the other students to find new ways of approaching the materials and the tools we are using. I want you to emerge as an innovative and creative digital design artist. I am here to support you in these goals. If you have any questions, small or large, technical or conceptual, please speak to me.

I can also make an appointment to meet with you at a time – outside of class and office hours – that is more convenient for you. Please do not hesitate to contact me if you are having trouble or need help.

Students with documented disabilities should inform the instructor during the first week of the semester to receive appropriate accommodations. Any chronic/permanent disability for which accommodations may be required – whether taken or not by the student – must be documented with, and confirmed by, the NJIT Office of Student Disability Services. (Students are not required to avail themselves of any accommodations to which they are entitled.) Temporary disabilities that are obvious (e.g., broken arm) may be assessed by the instructor but should still be documented with the Dean of Students. Accommodations sought after the start of the semester will only be offered to students in those instances where the disabilities are diagnosed or have the first instance of occurrence during the semester. No retroactive accommodations are available.

A.I. statement: A.I. in this course should ONLY be used for reference and inspiration. Work should be made entirely by one's self; however it is important to understand developing landscape of AI technology. All modeling should be done with the skills that you will learn in this course and skills students already have.

All students are expected to engage in academically honest work

Academic Integrity

Upholding academic integrity is a commitment to the pillars of honesty, trust, fairness, respect, responsibility, and courage.

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found in NJIT Academic Integrity Code.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing, or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the Code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

Do you need to withdraw?

Students sometimes have a need to withdraw from a class due to personal or academic reasons. Click here for deadline dates.

If you do encounter difficulties, please contact me prior to withdrawing.

(Subject to change)

Date	Proposed Class Schedule	Due
Thursday, September 5	Syllabus Discuss Assignments 1-3 Start Assignment 1: Trashcan Modeling	
Monday, September 9	Machine: Pre-production and Design – Discuss	
Thursday, September 12	Assignment 1: Trashcan UVs	Assignment 1: Trashcan
Monday, September 16	Assignment 2: Modeling & UVs	
Thursday, September 19	Assignment 2: Modeling & UVs	
Monday, September 23	Assignment 2: Texturing	
Thursday, September 26	Assignment 2: Texturing	
Monday, September 30	Assignment 3: Rigging & Animation In-class: Intro to Animation	Assignment 2: Mechanimation – Design & Texturing
Thursday, October 3	Animation	
Monday, October 7	Animation	
Thursday, October 10	Animation	
Monday, October 14	Animation	
Thursday, October 17	Animation, lighting & rendering	
Monday, October 21	Class Crit/Review	Assignment 3 Mechanimation Maya scene of completed animation; one still render of lighting; pre-production/process presentation.
Thursday, October 24	Discuss Assignments 4-6 Assignment 4	Full pre-production/process presentation and Maya composite of fully rendered animation sequence as MP4.

Monday, October 28	Assignment 4	
Thursday, October 31	Assignment 4	
Monday, November 4	Assignment 5	Assignment 4
Thursday, November 7	Assignment 5	
Monday, November 11	Assignment 5	
Thursday, November 14	Assignment 6 In-class: Intro to Dodger animation	Assignment 5
Monday, November 18	Assignment 6	
Thursday, November 21	Assignment 6	
Monday, November 25	Assignment 6	
Tuesday, November 26	Assignment 6	
Monday, December 2	Final Review	Assignment 6 The Artful Dodger Maya scene of completed animation; one still render of lighting; pre-production/process presentation.
Thursday, December 5	Adjustments/fixes based on Final Review feedback. Rendering & Compositing	
Monday, December 9	Rendering & Compositing	Submit full pre-production/process presentation (PPT); MP4 composite of a fully rendered animation sequence.