Animation: Specialty / Modeling and Rigging

ART 313 – 1 | MWF, 12:00PM –1:50PM | AJ380

Instructor Information

Name: Andy Beane

Instructor Contact Information:

Email: jabeane@bsu.edu

Canvas Address: bsu.instructure.com

Office Hours: By Appointment, AJ356, TR 2:30pm – 3:30pm

Course Information

Course Description

Advanced study of 3D computer animation. Students will begin to focus on a specialty in the commercial field of animation. Topics may include modeling, texturing, rendering, character animation, rigging, and simulation.

Prerequisites

ART 312

Course Objectives

This course introduces techniques of 3D computer graphics, as well as the fundamental concepts and philosophy of animation. The techniques include 3D modeling, digital lighting and shading, and basic animation, While Autodesk Maya and zBrush are the primary programs used to complete the course assignments, this class features a combination of studio activities, critiques, readings, writings and discussions related to animation and digital media.

Students are responsible for learning digital software in order to complete the assignments. Demonstrations of the software are meant to be introductory. In addition to regularly scheduled class time, students are expected to further enhance their understanding of 3D computer graphic techniques and software by working through assigned resources.

Course Outcomes

Upon successful completion of this course, the student should be able to:

- Apply time and resource management principles to the development and production of computer animation projects in accordance with program requirements and industry standards
- Establish strategies for promoting and distributing final project
- Interact in a professional manner with team members through the employment of appropriate interpersonal and communication skills
- Synthesize information from diverse sources for project purposes

Software Needed

Maya, ZBrush, Photoshop, Substance Painter, PurRef, After Effects and others as needed.

Course Modality/Structure

The format for this class will combine lecture, demonstration, studio work time, group discussion, and critique. There will be a Course Calendar located on the Canvas course site, which includes all weekly tasks, assignments, and due dates. This calendar will be updated as the semester progresses.

Course Time Commitment

It is expected that students will spend approximately 2 hours of study time outside of class for every one hour in class. Since this is a 3-credit hour studio, you should expect to study an average of 6 hours outside of class each week.

Course Materials

Reference Material: Udemy (all Ball State Students have access at my.bsu.edu)

Required Texts: None

Course Fee: None

Recommended Hardware: Wacom Grip Pen: Model Number KP501E2

Materials and Supplies: Note taking material, flash drive, Portable hard drive, or some type of media storage device.

Making Back-ups: Students are responsible for all digital work. Never rely on the local computer “M” drive or Desktop in the computer labs for any overnight storage or long-term storage. The “M” drives on the computers will not be touched until the end of the semester over the breaks for cleanup unless the drive becomes full. The loss of class work due to the lack of back-up is not a viable excuse in this class. Hard drives go corrupt and flash drives break. As a digital artist, expect this and plan ahead for it. Always back up everything and

do not leave all your files in one location. I would highly recommend using cloud storage such as OneDrive, Dropbox, or a Google drive to aid with online storage. Course assignments and assessments

Course Assignments and Assessments

The Value of Your Work: As an artist/designer/creative, you help to determine the worth of your work and to cultivate respect for the work that you create. You should take care of your work, the execution, craftsmanship and maintenance of your work reflects on you. Maintaining a portfolio (physical/digital) is an important aspect of your development and education.

Grading Scale: Based on Industry Standards
A = You excelled and added techniques not taught by instructor
B = Did the work asked for with acceptable results
C = Did the minimally acceptable work and attended all classes
D = Unacceptable work but attended all class and completed all homework
F = Unacceptable work, unacceptable homework, and unacceptable attendance

Course Assignments

Please see the weekly outline at the bottom of this syllabus.

Course Weights and Grading Scale

All Tracks
Online Discussion Board – 10%

Modeling Track
Homework – 90%

Rigging Track
Homework – 90%

VFX Animation Track
Homework – 90%

Homework: Points Based
Grading Scale: Based on Industry Standards

3 = You excelled and added techniques not taught by instructor

2 = Completed the work asked for with acceptable results

1 = Completed the minimally acceptable work

0 = Unacceptable work

Assignment and Examination Schedule: Modeling Track

Assignment/Exam	Due Date
Gazing Globe	Week 1
Wood Plank	Week 2
Rubber Tire	Week 3
Snowman	Week 4
Brushed Metal	Week 5
Car Paint	Week 6
Subsurface Scattering	Week 7
Weapon Model	Week 11
Weapon Texture	Week 12
Final Project Model	Week 13
Final Project Texture	Week 14
Final Project Env Model/Texture	Week 16
Final Project Render	Finals

Assignment and Examination Schedule: Rigging Track

Assignment/Exam	Due Date
Advanced Skeleton with Face Rig	Week 3
Human Realistic Rig	Week 5
Cartoon (Exaggerated) Rig	Week 10
Quadruped Rig	Week 13
Human IK Rig	Week 14
Prop Rig	Week 15
Tool Writing Script	Week 16

Assignment and Examination Schedule: VFX Animation

Assignment/Exam	Due Date
Planar Tracking	Week 2
Object removal	Week 3
Tattoo	Week 4
Makeup Gore	Week 5
Mocap Capture	Week 6
Import Mocap Data	Week 7
Mocap Cleanup	Week 8
Mocap Retargeting	Week 10
Mocap Polish	Week 11
Mocap Blending	Week 12
Scene Analysis	Week 13
Match moving Planning	Week 14
Particle shot	Week 15
Final Camera Track Particles	Week 16
Maya After Effects Particles	Finals Week

Course Statements and Policies

Participation Policy

- This course is designed with weekly activities, discussion, and other forms of regular collaboration and communication.
- Class time will be spent in a productive manner.
- It is recommended that you log into your course 3 to 4 times a week and check your official Ball State email account daily to view announcements and prepare for class.
- Complete all assignments, quizzes, tests, and any other activities by the stated due dates.

In-class critique: In-class critiques are very important to your growth as an animation student and one day as a professional artist. A professional animation studio conducts "daily's", which means every day your work is viewed in different stages to make sure that it adheres to the larger project's needs. If you turn in work that is not complete to the stage the class is currently critiquing, your work will be passed over during the critique. If there is time at the end of class, your work will then be critiqued as best as possible in its current form.

Feedback Policy

- I will respond to email from your official Ball State email address within 24 hours during week days (Monday-Friday) and within 48 hours on the weekend.
- I will read every discussion post but I will not always personally comment on posts.
- I will grade your quizzes, assignments, and discussions no later than within 5 business days of submission.
- Contact me directly if you have questions or concerns about your performance in class.

Late Assignment Policy

- All assignments are due by the dates and times indicated on Canvas.
- Assignments posted after the indicated time will receive half credit.
- **If the assignment is submitted more than seven days after the deadline, you will receive no credit.**
- Internet connectivity and technical issues may occur and impede you from turning in work on time. Turn in work early and often, and set up a **back-up** plan, such as visiting the computer labs or having a personal hard drive for backup.
- Late work on final projects will receive a grade of zero.
- On-time projects may be redone with instructor approval.
- ABSOLUTELY NO WORK WILL BE ACCEPTED AFTER THE FINAL CLASS.

Assignment Submission Policy

- All assignments should be submitted using the standardized methods established for the animation program. Please see examples below.
- Assignments, unless otherwise indicated, should be submitted to our designated dropbox folder on Artbox01**.** Assignments will **NOT** be submitted directly through Canvas.

Naming in Maya scenes – All objects, groups, objects within groups, textures or shaders are to be named, or there will be a **0.5 point deduction** on homework assignments.

Naming convention for all animation homework files –
'last name_first name_name of project' If your completed homework file name does not conform to naming convention, the homework will not be accepted.

Examples:

- Beane_Andy_FinalRig.mb
- Ludwick_Brian_FinalStoryboard.pdf
- Condie_Brad_FirstDraftAnimation.ma

Default Deliverable File Format Standards – all files are to be formatted for homework or final projects using one of the following standards. If your file does not conform to file format standard, the homework will not be accepted.

Movie File - Resolution 1920 x 1080, Format H.264, Aspect Ratio square pixels, Profile main (Media Encoder use the VimeoHD preset) **File Type:** .mp4

Rendered Images - Resolution 1920 x 1080, dpi 72. **File Type:** .png

Grading Policy

It is my policy that appropriate evaluation of your academic performance is an integral part of your learning experience. In the absence of mistake, fraud, bad faith or incompetence, I will be the key decision-maker on the assignment of grades. For information concerning grade appeals, consult the Ball State website.

University Policies

Disability Statement

We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse. If you need course adaptations or accommodations because of a disability, please contact the instructor of record as soon as possible. Ball State's Disability Services office coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability Services can be contacted at 765-285-5293 or dsd@bsu.edu.

Attendance

This course is based upon a series of meetings involving videos, discussions, homework assignments and projects. Attendance at all classes is mandatory. All absences are considered unexcused. Extraordinary circumstances should be discussed as soon as possible to help you stay on track. All accommodations will require official documentation and are subject to the instructor's discretion. For 16-week courses meeting three times a week, five unexcused absences are permitted. Upon sixth, unexcused absence results in an automatic failure of the course.

Ball State Academic Ethics

Honesty, trust, and personal responsibility are fundamental attributes of the university community. Academic dishonesty and other forms of academic misconduct threaten the foundation of an institution dedicated to the pursuit of knowledge and will not be tolerated. To maintain its credibility and reputation, and to equitably assign evaluations of scholastic and creative performance, Ball State University is committed to maintaining a climate that upholds and values the highest standards of academic integrity. Visit the complete Student Academic Ethics Policy.

Plagiarism Policy

Plagiarism is not acceptable, unless otherwise indicated for all assignments, you must work independently by yourself. Sharing of files is not permitted for any reason.

Potential Violations

Examples of academic integrity violations include but are not limited to:

- Working with another person on any assignment other than authorized group projects.
- Sharing or allowing others to access your files, whether done with permission or not.
- Use or possession of a file created by someone else.
- Reusing work from another semester, course, or section.
- Fraudulent submission of work.
- Using unauthorized materials during Exams.

- Impersonating someone else or having them impersonate you.
- Making fraudulent or dishonest statements regarding your work.
- Soliciting others to complete work for you.
- Posting course files and resources on study or content sharing websites.

Plagiarism Detection

The campus subscribes to Turnitin, a plagiarism prevention service, through Canvas. You may need to submit written assignments to Turnitin. Student work will be used for plagiarism detection and for no other purpose. The student may indicate in writing to the instructor that he/she refuses to participate in the plagiarism detection process, in which case the instructor can use other electronic means to verify the originality of their work.

AI Policy:

As part of this course, students are permitted to use text-based AI tools, including ChatGPT, to support their creative and technical work. However, the responsible and ethical use of AI is essential and should align with the principles of academic integrity, originality, and respect for the creative process.

Guidelines for AI Use:

1. **Purposeful Assistance**: AI tools may be used for brainstorming, generating ideas, refining written content, or solving technical challenges. AI should serve as a supplement to your own critical thinking and creativity, not a replacement.
2. **Transparency**: Clearly document when and how AI tools were used in your project.
3. **Originality and Ownership**: Ensure that the final work reflects your personal vision and effort. AI-generated content must be reviewed and integrated thoughtfully, not submitted as-is, to maintain the integrity of your artistic voice.
4. **Critical Evaluation**: Verify the accuracy, relevance, and originality of AI-generated content. Be cautious of relying on AI-generated outputs that may perpetuate biases, inaccuracies, or unoriginal ideas.
5. **Respect for Collaboration**: If collaborating with peers, discuss and agree upon the role AI will play in your shared work to maintain fairness and equitable contribution.

Ethical Considerations:

1. **Moral Responsibility**: Recognize the broader ethical implications of using AI tools, including potential issues of copyright infringement, plagiarism, and over-reliance on automated processes.
2. **Cultural Sensitivity**: Be mindful of biases or culturally insensitive outputs generated by AI tools. It is your responsibility to evaluate and adjust content to reflect ethical and inclusive values.
3. **Creative Integrity**: Understand that your capstone project is a demonstration of

your skills and creativity as an artist and professional. Misuse of AI tools to shortcut the creative process can undermine the purpose of the course and your learning experience.

Consequences for Misuse:

Failure to comply with these guidelines may result in academic penalties, including loss of credit for assignments or projects where misuse is identified. Additionally, such behavior may be reported in accordance with the university's academic integrity policies.

By adhering to this policy, you will demonstrate professionalism and ethical decision-making while leveraging AI as a valuable tool in your creative journey. (I did use AI to help create this AI policy)

Canvas and Student Privacy

Canvas Accessibility

Canvas provides a user experience that is easy, simple, and intuitive. Special attention has been paid to making Canvas screen-readable. The Rich Content Editor encourages users to create accessible content pages (i.e. text formatting is accomplished using styles). Canvas is designed to allow limited customization of colors and schemes to be accessible for all users. The National Federation of the Blind granted Canvas the Gold Level Web Certification in 2010.

Find more information by visiting the Canvas Voluntary Product Accessibility Template (VPAT).

FERPA and Privacy

As a student, your educational records are considered confidential. Under FERPA (Family Educational Rights and Privacy Act), your records are confidential and protected. Under most circumstances, your records will not be released without your written and signed consent. However, some directory information may be released to third parties without your prior consent unless a written request to restrict this is on file. You can learn more about student rights to privacy by reading Ball State's FERPA and Privacy and Protection.

Video Conferencing Recording

In this class, software may be used to record live class discussions. As a student in this class, your participation in live class discussions may be recorded. These recordings typically will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. Students who prefer to participate via audio only will be allowed to disable their video camera so only audio will be captured. Students who prefer to listen only must disable their audio capability and visual camera. If you have concerns, please discuss these options with me.

Academic Support Services

The Writing Center

All writers improve with practice and feedback, so as a student in this course, you are encouraged to use the Writing Center (in Robert Bell 295, Bracken Library, or online) to get additional feedback on your writing. To schedule a free appointment to discuss your writing, go to www.bsu.edu/writingcenter. Online and in-person appointments are available seven days a week; however, plan ahead because appointments book quickly!

The Learning Center

The Learning Center offers free Tutoring and Academic Coaching for many courses at Ball State. Students can make appointments for online (Zoom) or in-person (NQ 350) appointments. To make an appointment, visit my.bsu.edu and click on "Navigate" in the Additional Tools Section, or just go directly to https://bsu.navigate.eab.com.

Testing accommodations for students with disabilities are available for students who have received the appropriate documentation from Disability Services. Tests may be administered in the Learning Center.

Supplemental Instruction is available in select courses. If you have an SI leader for your course, that person will provide students with information the first week of school regarding weekly study sessions. For more information about all of our programming, visit bsu.edu/learningcenter or call 765-285-1006. Follow us on Instagram: BallStateLC.

Subject to Change Statement

This syllabus and schedule are subject to change.

Weekly Outline Modeling

Week 1: Gazing Globe
Mon – Intro to Class – Discussion –Gazing Globe Start
Wed – Workday
Fri – Review Gazing Globe First Pass

Week 2: Wood Plank
Mon – Discussion - Workday, Wood Plank Start
Wed – Workday
Fri – Review Wood Plank First Pass
Homework Due: Gazing Globe Second Pass

Week 3: Rubber Tire
Mon – **NO CLASS**
Wed – Rubber Tire Start
Fri – Review Rubber Tire First Pass
Homework Due: Wooden Plank Second Pass

Week 4: Snowman
Mon – Discussion - Workday, Snowman Start
Wed – Workday
Fri – Review Snowman First Pass
Homework Due: Rubber Tire Second Pass

Week 5: Brushed Metal
Mon – Discussion - Workday, Brush Metal Start
Wed – Workday
Fri – Review Brushed Metal First Pass
Homework Due: Snowman Second Pass

Week 6: Car Paint
Mon – Discussion - Workday, Car Paint Start
Wed – Workday
Fri – Review Car Paint First Pass
Homework: Brushed Metal Second Pass

Week 7: Subsurface Scattering
Mon – Discussion - Workday, Subsurface Scattering Start
Wed – Workday
Fri – Review Subsurface Scattering
Homework Due: Car Paint Second Pass

Week 8: Weapon Modeling

Mon – Discussion - Workday, Weapon Start

Wed – Workday
Fri – Workday
Homework Due: Subsurface Scattering Second Pass

Week 9: SPRING BREAK
Mon – **NO CLASS**
Wed – **NO CLASS**
Fri – **NO CLASS**

Week 10: Weapon Modeling
Mon – Discussion Workday
Wed – Review Weapon Model First Pass
Fri – Workday

Week 11: Weapon Texturing
Mon – Discussion Workday
Homework Due: Weapon Model due
Wed – Workday
Fri – Review Weapon Model First Pass

Week 12: Weapon Texturing
Mon – Discussion Workday
Wed – Workday
Homework Due: Weapon Texture due
Fri – Final Project Start

Week 13: Final Project
Mon – Discussion Workday
Wed – Workday
Fri – Workday
Homework Due: Final Assest Building Model Due

Week 14: Final Project
Mon – Discussion Workday
Wed – Workday
Fri – Workday
Homework Due: Final Asset Building Texture Due

Week 15: Final Project
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Week 16: Final Project
Mon – Discussion Workday
Homework Due: Final ENV Model/Texture Due
Wed – Workday
Fri – Workday

Finals Week:
Mon – Workday
FINAL Wed April 29th – Noon to 2pm
Homework Due: Final ENV Render
NO LATE WORK WILL BE ACCEPTED FOR THE FINAL
HAVE A GREAT BREAK!

Weekly Outline Rigging

Week 1: Advance Skeleton with Face Rig
Mon – Intro to Class Discussion
Wed – Workday
Homework Due: Rigging Solutions for Adv Skeleton
Fri – Workday

Week 2: Advance Skeleton with Face Rig
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Week 3: Human Real Rig
Mon – **NO CLASS**
Wed – Workday
Homework Due:
- Advance Skelton Rig
- Rigging Solutions for Human Real Rig

Fri – Workday

Week 4: Human Real Rig
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Week 5: Human Cartoon
Mon – Discussion Workday
Homework Due:
- Human Real Rig
- Rigging Solutions for Cartoon Rig

Wed – Workday
Fri – Workday

Week 6: Human Cartoon
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Week 7: Human Cartoon
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Week 8: Human Cartoon
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Week 9: SPRING BREAK
Mon – **NO CLASS**
Wed – **NO CLASS**
Fri – **NO CLASS**

Week 10: Quadruped Rig
Mon – Discussion Workday

Homework Due:

- Cartoon Rig
- Rigging Solutions for Quadruped Rig

Wed – Workday
Fri – Workday

Week 11: Quadruped Rig
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Week 12: Quadruped Rig
Mon – Discussion Final Project Start Wed – Workday
Fri – Workday

Week 13: Human IK
Mon – DIscussion Workday

Homework Due:

- Quadruped Rig
- Rigging Solutions for Human IK Rig

Wed – Workday
Fri – Workday

Week 14: Prop Rig
Mon – Discussion Workday

Homework Due:

- Human IK Rig
- Rigging Solutions for Prop Rig

Wed – Workday
Fri – Workday

Week 15: Tool Writing Scripting
Mon – Discussion Workday

Homework Due:

- Prop Rig
- Rigging Solutions for Tool Script

Wed – Workday
Fri – Workday

Week 16: Tool Writing Scripting
Mon – Discussion Workday
Wed – Workday
Fri – Workday

Finals Week:
Mon – Workday
Refer to Academic Calendar for Final Date and Time
NO LATE WORK WILL BE ACCEPTED FOR THE FINAL
HAVE A GREAT BREAK!

Weekly Outline VFX Animation

Week 1: Mocha Pro Mocha Pro Fundamentals & Planar Tracking Basics
Mon – Intro to Class Discussion
Wed – Workday
Fri – Workday

Week 2: Mocha Pro Object Removal & Clean Plate Creation
Mon – Discussion Workday
Homework Due: Planar Tracking
Wed – Workday
Fri – Workday

Week 3: Mocha Pro Tattoo Addition & Removal
Mon – **NO CLASS**
Wed – Workday
Homework Due: Object Removal
Fri – Workday

Week 4: Mocha Pro Makeup & Gore Effects
Mon – Discussion Workday
Homework Due: Tattoo
Wed – Workday
Fri – Workday

Week 5: Mocap MoCap Fundamentals & Sony mocopi Capture
Mon – Discussion Workday
Homework Due: MakeUp and Gore Effects
Wed – Workday
Fri – Workday

Week 6: Mocap Importing & Raw Data Evaluation in Autodesk Maya
Mon – Discussion Workday
Homework Due: Mocopi Capture
Wed – Workday
Fri – Workday

Week 7: Mocap Motion Cleanup & Noise Reduction in Maya
Mon – Discussion Workday
Homework Due: Mocap Import
Wed – Workday

Fri – Workday

Week 8: Mocap Retargeting to Advanced Skeleton in Maya
Mon – Discussion Workday
Homework Due: Mocap Cleanup
Wed – Workday
Fri – Workday

Week 9: SPRING BREAK
Mon – **NO CLASS**
Wed – **NO CLASS**
Fri – **NO CLASS**

Week 10: Mocap Performance Polish & Motion Editing in Maya
Mon – Discussion Workday
Homework Due: Mocap retargeting
Wed – Workday
Fri – Workday

Week 11: Mocap Motion Blending & Final Performance Shot
Mon – Discussion Workday
Homework Due: Mocap Polish
Wed – Workday
Fri – Workday

Week 12: Camera Tracking Fundamentals & Scene Analysis
Mon – Discussion Workday
Homework Due: Mocap Blending
Wed – Workday
Fri – Workday

Week 13: Matchmoving Concepts & Particle Planning
Mon – Discussion Workday
Homework Due: Scene Analysis
Wed – Workday
Fri – Workday

Week 14: Trapcode Particular with Tracked Camera
Mon – Discussion Workday
Homework Due: Matchmoving Planning
Wed – Workday
Fri – Workday

Week 15: Final Camera Track & Particle Shot
Mon – Discussion Workday
Homework Due: Particle shot
Wed – Workday
Fri – Workday

Week 16: Maya Camera → After Effects Trapcode Particular Final Shot
Mon – Discussion Workday
Homework Due: Final camera track Particles
Wed – Workday
Fri – Workday

Finals Week: Final Project
Mon – Workday
FINAL Wed April 29th – Noon to 2pm
Homework Due: Maya aftereffects Particles
NO LATE WORK WILL BE ACCEPTED FOR THE FINAL
HAVE A GREAT BREAK!