

COURSE OUTLINE		
TERM: Fall 2027	COURSE NO: DIGI 231	
INSTRUCTOR:	COURSE TITLE: Visual Effects Animation III	
OFFICE: LOCAL: E-MAIL: @capilanou.ca	SECTION NO(S):	CREDITS: 4.5
OFFICE HOURS:		
COURSE WEBSITE:		

Capilano University is named after Chief Joe Capilano (1854–1910), an important leader of the Sk̓wx̓wú7mesh (Squamish) Nation of the Coast Salish Peoples. We respectfully acknowledge that our campuses are located on the unceded territories of the səliłwətał (Tseil-Waututh), shíshálh (Sechelt), Sk̓wx̓wú7mesh (Squamish), and xʷməθkʷəy̓əm (Musqueam) Nations.

COURSE FORMAT

6 lecture hours per week for 15 weeks.

COURSE PREREQUISITES

DIGI 141

CALENDAR DESCRIPTION

This course develops advanced skills in the creation of dynamic visual effects simulations for use in film and animation productions. Students will design and produce natural phenomena such as smoke, fire, water, and destruction using procedural workflows and integrate them into live action plates. An emphasis is placed on artistic direction, compositing, realism, and professional production practices.

REQUIRED TEXTS AND/OR RESOURCES

Recommended reading: *The CG Cinematography Book*, Brejon, Chris. <https://chrisbrejon.com/>

COURSE STUDENT LEARNING OUTCOMES

On successful completion of this course, students will be able to do the following:

- Plan, organize, and create animated effects using procedural and node-based workflows to develop complex particle, dynamic object, cloth, and fluid simulations;
- Design and produce natural phenomena including rain, smoke, cloth, destruction, and fire;
- Animate simulations with realistic motion and timing;
- Analyze and determine effective creative and technical approaches to producing simulated effects for a shot;
- Composite computer generated elements and simulations into cinematic sequences;
- Manage simulation projects efficiently within production timelines;

- Collaborate effectively in a team environment, demonstrating leadership and professional work habits.

COURSE CONTENT

This content will be delivered in the form of lectures, screenings and in class exercises as well as assignments. All course materials will be on elearn and the content will be delivered in-person.

WEEK	TOPICS	READINGS and ACTIVITIES
Weeks 1-3	Procedural Foundations and Controlled Variation Building procedural thinking and preparing assets for simulation <ul style="list-style-type: none"> • Procedural and node-based workflows • Creating and managing variation • Attribute-driven control and iteration • Preparing geometry and data for simulation • Efficient scene organization 	Assignment 1 – Procedural Modeling & Variation <ul style="list-style-type: none"> • Create a procedural asset or system that demonstrates controlled variation and readiness for simulation use.
Weeks 4-6	Particle Systems and Dynamic Motion <ul style="list-style-type: none"> • Advanced Particle-based simulations • Forces, emission control, and motion shaping • Instancing geometry to dynamic systems • Timing, scale, and believable motion 	Assignment 2 – Particle Simulation Develop a particle-based effect demonstrating clear motion logic, control, and visual clarity.
Weeks 7-9	Rigid Body Dynamics and Destruction Physically based interaction and structural breakup <ul style="list-style-type: none"> • Rigid body simulation principles • Collision setup and constraints • Fracturing and destruction workflows • Optimization from low-resolution to high-resolution results 	Assignment 3 – Rigid Body Destruction Simulation Create a destruction-based simulation emphasizing believable weight, timing, and physical interaction.
Weeks 10-12	Volumetric Effects and Gaseous Simulation Natural phenomena such as smoke, dust, and fire <ul style="list-style-type: none"> • Volumetric simulation fundamentals • Controlling density, turbulence, and motion • Managing fast-moving effects • Optimization and caching of complex simulations 	Assignment 4 – Smoke / Dust Simulation Produce a volumetric simulation demonstrating controlled motion, scale, and realism.
Weeks 13-15	Final Project – Integrated Simulation Sequence Focus: Complex effects design and professional presentation <ul style="list-style-type: none"> • Planning and breakdown of a simulation-heavy shot • Combining multiple simulation systems • Iteration, refinement, and optimization • Final presentation and critique 	Final Project – Simulation-Based FX Sequence Create an original effects sequence integrating multiple simulation techniques developed throughout the course.

EVALUATION PROFILE

Participation	10%
Assignment 1 – Procedural Modeling	10%
Assignment 2 – Particle Simulation	15%
Assignment 3 – Rigid Body Destruction	15%

Assignment 4 – Smoke / Dust Simulation	20%
<u>Final Project – Integrated FX Sequence</u>	<u>30%</u>
Total:	100%

Assignment Descriptions

All assessments will be completed and/or submitted online.

- Assignments – MS Teams
- Final Assignments – copy to class folder on the Bosanas
- Work in progress – upload your video files to SyncSketch for weekly feedback and/or drawovers

All assignments will be included in the calculation of your final grade. Failure to submit assignments may result in failing the course.

Participation

Participation is evaluated based on regular attendance in classes and labs, active engagement in discussions and projects, demonstrated understanding of assigned readings and coursework, and the frequency and quality of relevant comments, questions, and observations.

GRADING PROFILE

A+ = 90-100	B+ = 77-79	C+ = 67-69	D = 50-59
A = 85-89	B = 73-76	C = 63-66	F = 0-49
A- = 80-84	B- = 70-72	C- = 60-62	

Incomplete Grades

Grades of Incomplete “I” are assigned only in exceptional circumstances when a student requests extra time to complete their coursework. Such agreements are made only at the request of the student, who is responsible to determine from the instructor the outstanding requirements of the course.

Late Assignments

All assignments must be delivered at the place and time specified by the instructor. Late assignments will only be accepted if prior approval for a late submission date has been given by the instructor.

Missed Exams/Quizzes/Labs etc.

If you anticipate missing an exam/quiz/or lab, please consult with your instructor prior to the scheduled date, so that alternate arrangements can be considered. Accommodation can be made to honour community needs and traditional practices.

Attendance

Students are expected to attend all classes and associated activities. Attendance is taken at the start of each class. Students who miss more than 20% of the course will not receive credit. Students are responsible for all material and assignments, even if absent. If circumstances affect attendance or

coursework, email the instructor in advance to discuss possible adjustments. Instructors are not required to repeat missed material.

English Usage

Students are expected to proofread all written work for any grammatical, spelling and stylistic errors. Instructors may deduct marks for incorrect grammar and spelling in written assignments.

Electronic Devices

Students may use personal electronic devices during class for note taking only.

On-line Communication

Please be sure to check your official Capilano University email regularly as all official communication will be sent via this email address only. Additionally, you should be logging on to eLearn/teams 3 to 4 times per week for class updates and/or to engage in learning activities.

UNIVERSITY OPERATIONAL DETAILS

Tools for Success

Many services are available to support student success for Capilano University students. A central navigation point for all services can be found at: <https://www.capilanou.ca/student-services/>

Capilano University Security: download the [CapU Safe Alert App](#)

Policy Statement (S2009-06)

Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Academic Integrity, Academic Probation and other educational issues. These and other policies are available on the University website.

Academic Integrity (S2017-05)

Any instance of academic dishonesty or breach of the standards of academic integrity is serious and students will be held accountable for their actions, whether acting alone or in a group. See policy and procedures S2017-05 Academic Integrity for more information:

<https://www.capilanou.ca/about-capu/governance/policies/>

Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances, are prohibited and will be handled in accordance with the Student Academic Integrity Procedures.

Academic dishonesty is any act that breaches one or more of the principles of academic integrity. Acts of academic dishonesty may include but are not limited to the following types:

Cheating: Using or providing unauthorized aids, assistance or materials while preparing or completing assessments, or when completing practical work (in clinical, practicum, or lab settings), including but not limited to the following:

- Copying or attempting to copy the work of another during an assessment;
- Communicating work to another student during an examination;
- Using unauthorized aids, notes, or electronic devices or means during an examination;
- Unauthorized possession of an assessment or answer key; and/or,
- Submitting of a substantially similar assessment by two or more students, except in the case where such submission is specifically authorized by the instructor.

Fraud: Creation or use of falsified documents.

Misuse or misrepresentation of sources: Presenting source material in such a way as to distort its original purpose or implication(s); misattributing words, ideas, etc. to someone other than the original source; misrepresenting or manipulating research findings or data; and/or suppressing aspects of findings or data in order to present conclusions in a light other than the research, taken as a whole, would support.

Plagiarism: Presenting or submitting, as one's own work, the research, words, ideas, artistic imagery, arguments, calculations, illustrations, or diagrams of another person or persons without explicit or accurate citation or credit.

Self-Plagiarism: Submitting one's own work for credit in more than one course without the permission of the instructors, or re-submitting work, in whole or in part, for which credit has already been granted without permission of the instructors.

Prohibited Conduct: The following are examples of other conduct specifically prohibited:

- Taking unauthorized possession of the work of another student (for example, intercepting and removing such work from a photocopier or printer, or collecting the graded work of another student from a stack of papers);
- Falsifying one's own and/or other students' attendance in a course;
- Impersonating or allowing the impersonation of an individual;
- Modifying a graded assessment then submitting it for re-grading; or,
- Assisting or attempting to assist another person to commit any breach of academic integrity.

Sexual Violence and Misconduct

All Members of the University Community have the right to work, teach and study in an environment that is free from all forms of sexual violence and misconduct. Policy B401 defines sexual assault as follows:

Sexual assault is any form of sexual contact that occurs without ongoing and freely given consent, including the threat of sexual contact without consent. Sexual assault can be committed by a stranger, someone known to the survivor or an intimate partner.

Safety and security at the University are a priority and any form of sexual violence and misconduct will not be tolerated or condoned. The University expects all Students and Members of the

University Community to abide by all laws and University policies, including B.401 Sexual Violence Policy and B.401.1 Sexual Violence Procedure (found on Policy page <https://www.capilanou.ca/about-capu/governance/policies/>)

Emergencies: Students are expected to familiarise themselves with the emergency policies where appropriate and the emergency procedures posted on the wall of the classroom.

DEPARTMENT OR PROGRAM OPERATIONAL DETAILS

Continuation Policy

Students must successfully complete the required and elected 2D Animation (ANIM), 3D Animation (DIGI) or VFX course credits in one term before continuing to the next term.

Punctuality

Punctuality is essential. Students more than 15 minutes late for class will be marked absent.

Professional Behaviour

Students must demonstrate a professional attitude and behaviour toward work, other students, guests, and instructors. Each student should demonstrate reliability, respect for and co-operation with colleagues. A willingness to work calmly and courteously under difficult conditions as well as a determination to achieve first-class work while meeting deadlines is necessary in this course. Students must show respect for equipment and facilities.

Class Recordings

Class sessions may be recorded for use within this course only. Recordings may not be shared, reproduced, or uploaded outside the class. If recordings are to be used for any other purpose, students who are identifiable will be notified and their consent requested in advance.

Online Community and Communication Tools

All class content will be available through the course on <https://elearn.capu.ca>. All direct student communication will be done via Capilano email/teams.

Software	Link
eLearn	https://elearn.capu.ca/
myCapU	www.capilanou.ca/mycapu/
Zoom	www.zoom.com/
Microsoft Teams	teams.microsoft.com