

KAPI'OLANI COMMUNITY COLLEGE
University of Hawai'i
COURSE OUTLINE (Form: 02/02/02)

ART 126 3D Computer Graphics I

1. COURSE INFORMATION: (10/28/04)

ART 126 3D Computer Graphics I (3 credits) AA/DA

6 hours lecture/lab per week

Prerequisite: ART 112 with a grade of "C" or higher; approval of the Introduction to 3D Computer Graphics I portfolio entrance review or acceptance into a NMA AS specialization.

ART 126 provides introductory studio experience in 3D computer graphic concepts with Alias Wavefront MAYA. Emphasis will also be placed on developing an aesthetic criteria for evaluation.

Comment: Students must pay an additional fee of \$125 for ART 126. This course may not be audited.

2. COURSE OBJECTIVES/COMPETENCIES:

Upon successful completion of ART 126, the student should be able to:

- Use the vocabulary and technological processes of 3D computer graphics.
- Explain how 3D computer graphics is used as an art tool through an examination of how it fits into media industry.
- Demonstrate relevant contemporary responses to 3D computer graphics.
- Use 3D computer graphics to generate personal visual images.
- Demonstrate basic skills and knowledge of 3d modeling, shading, lighting, and render techniques, using MAYA as a 3D tool.
- Complete the process from planning stage through revisions to a proposed project using design outlines.
- Demonstrate skills in the creation of production designs and model sheets as part of the developmental process.
- Apply the visual elements of line, shape, value, color, texture, and space as well as the design principles of balance, rhythm, emphasis, contrast, variation, and unity in the creation of art works.
- Use problem-solving strategies to complete the creative process from concept development through revisions to final output.
- Use of tools for storing, searching, retrieving, and transmitting digital information

- Work effectively as a team member to achieve creative decisions.
- Demonstrate strong group communication skills and the ability to speak clearly during critiques.
- Write about and defend the conceptual merits of work produced for the course.

3. GENERAL EDUCATION AND RELATIONSHIP TO OTHER COURSES:

ART 126 is a required course in the Associate in Science degree in New Media Arts with a specialization in Animation.

ART 112 is a prerequisite because students need to know the introductory software techniques taught in that class before they take this course.

This course supports the following college competency areas:

- Computation and communication abilities
- Values for living
- Quality of life as affected by technology and science
- Awareness of the dynamics in contemporary issues
- Problem-solving and decision-making abilities
- Responsiveness to the arts and humanities
- Career choices and life-long learning
- Study in a selected program

This course also satisfies the following Associate in Science degree, and/or Associate in Arts degree competencies:

After the successful completion of this course a student should be able to:

AS

- Understand attitudes and values of various cultures and examine their potential for improving the quality of life and meaningfulness in work.
- Recognize effects of technology and science on the natural and human environments.
- Understand contemporary issues and problems and respond to the impact of current conditions.
- Demonstrate proficiency in conceptual, analytical, and critical modes of thinking.
- Develop insights into human experience and apply them to personal, occupational, and social relationships.
- Recognize relevance of career choices to life-long learning.
- Demonstrate competence in a selected program of study.

AA

Critical Thinking:

Critical thinking, an analytical and creative process, is essential to every content area and discipline. It is an integral part of information retrieval and technology, oral communication, quantitative reasoning, and written communication. Upon completion of an A.A. degree, the student should be able to:

- Identify and state problems, issues, arguments, and questions contained in a body of information.
- Identify and analyze assumptions and underlying points of view relating to an issue or problem.
- Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.
- Synthesize information from various sources, drawing appropriate conclusions.
- Reflect upon and evaluate their thought processes, value systems, and worldviews in comparison to those of others.

AA

Information Retrieval and Technology:

Information retrieval and technology are integral parts of every content area and discipline.

Upon completion of an A.A. degree, the student should be able to:

- Use print and electronic information technology ethically and responsibly.
- Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.
- Create, manage, organize, and communicate information through electronic media.
- Recognize changing technologies and make informed choices about their appropriateness and use.

AA

Oral Communication:

Oral communication is an integral part of every content area and discipline. Upon completion of an A.A. degree, the student should be able to:

- Identify and analyze the audience and purpose of any intended communication.
- Gather, evaluate, select, and organize information for the communication.
- Use language, techniques, and strategies appropriate to the audience and occasion.
- Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.
- Use competent oral expression to initiate and sustain discussions.

AA -

Quantitative Reasoning:

Quantitative reasoning can have applications in all content areas and disciplines. Upon completion of an A.A. degree, the student should be able to:

- Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.
- Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.
- Define quantitative issues and problems, gather relevant information, analyze that information, and present results.

AA

Written Communication:

Written communication is an integral part of every content area and discipline. Upon completion of an A.A. degree, the student should be able to:

- Use writing to discover and articulate ideas.
- Identify and analyze the audience and purpose for any intended communication.
- Choose language, style, and organization appropriate to particular purposes and audiences.
- Gather information and document sources appropriately
- Develop a main idea clearly and concisely with appropriate content.

AA

Understanding Self and Community:

UH-Kapi`olani emphasizes an understanding of one's self and one's relationship to the community, the region, and the world. Upon completion of an A.A. degree, the student should be able to:

- Examine critically and appreciate the values and beliefs of their own culture and those of other cultures separated in time or space from their own.
- A. Communicate effectively and acknowledge opposing viewpoints.

Art 126 satisfies the following departmental and/or program competencies:

Upon successful completion of the Associate in Science degree in New Media Arts, the students should be able to:

- Create, manipulate and organize information in the production of multimedia materials
- Communicate information visually in several multimedia formats.
- Demonstrate understanding of the history, theory, and aesthetics of multimedia productions
- Identify and explain the social, ethical, and legal responsibilities related to the production of multimedia materials
- Use tools for storing, searching, retrieving, and transmitting digital information.
- Communicate clearly in group settings
- Work effectively as team members

- A. Explain and apply basic principles of cost control, task organization, and time management to multimedia production

4. COURSE CONTENT:

- A. 3D Computer Graphics: Theory and Aesthetics 25%
- Introduction to 3D Computer Graphics via theory and practice
 - Concepts and methods of working with Alias Wavefront Maya for the creation of 3D computer graphics
- B. Introduction to 3D ComputerGraphics: Basic 3D Modeling Concepts Using Alias Wavefront Maya 25%
- Getting Started: 3D essentials (an understanding of the 3D workspace)
 - Introduction to 3D modeling: developing specific software techniques
 - Production design issues and strategies: model sheets for 3D modeling
- C. Introduction to3D Computer Graphics: Basic 3D Shading Concepts Using Alias Wavefront Maya 25%
- Introduction to 3D shading: developing specific software techniques
 - Preparation and planning techniques: digital painting and texture mapping
- D. Introduction to3D Computer Graphics: Basic 3D Lighting and Rendering Using Alias Wavefront Maya 25%
- Introduction to 3D lighting and rendering: developing specific software techniques
 - Exploration of screen-based output formats for 3D rendering and digital compositing

5. POSSIBLE TEXTS:

While addressing the content of the course, texts and handouts will change to accommodate the availability of new course references on the field of multimedia. The references are stimulation and inspiration. Required readings will be via on-line resources.

REFERENCE MATERIALS:

Current suggested reference texts include:

Alias Wavefront Education. The Art of Maya. Toronto, Canada: Alias Wavefront, 2001
Alias Wavefront Education. Learning Maya 4. Toronto, Canada: Alias Wavefront, 2001
Demers, Owen. Digital Texturing and Painting. Indianapolis, Indiana: New Riders Publishing, 2002
Birn, Jeremy. Digital Lighting and Rendering. Indianapolis, Indiana: New Riders Publishing, 2000

Brinkmann, Ron. The Art and Science of Digital Compositing. San Diego, CA: Morgan Kaufmann, 1999

Reference materials will also be available in class and via on-line resources.

AUXILIARY MATERIALS AND CONTENT:

Students will use a variety of graphical and Internet software. This software and the infrastructure supporting its use are existing resources of New Media Arts.

6. METHOD OF INSTRUCTION:

The method of instruction will include lectures, studio demonstrations, project development, individual instruction, group discussions, and critiques. Examples are presented when important to describe course content. Class projects and procedures are the focus of many course discussions.

7. METHOD OF EVALUATION:

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| A. Projects Assignments | 90% |
| a. Clarity of Conceptual Thinking | 45% Students |
| will demonstrate their conceptual thought process about project assignments by creating their own model sheets, texture and lighting design development. Students will also show their thinking by submitting clearly written, well-conceptualized statements, by showing strong group communication skills and demonstrating the ability to speak clearly during critiques. | |
| b. Quality of Execution of Assignments | 45% |
| Each student will complete tutorials and personal projects that demonstrate their technical and artistic ability to execute specific 3D techniques based on project guidelines. Additionally, they will be expected to display their ability to execute specific software techniques. The aesthetic quality of these techniques and materials will be assessed in the final grade evaluation based on the successful application of the visual elements of line, shape, value, color, texture, and space as well as the design principles of balance, rhythm, emphasis, contrast, variation, and unity. | |
| B. Participation/Attendance | 10% |

Students will be expected to participate as active class members. This includes attending all classes; meeting intermediate and final project deadlines; completing production time outside of class in the lab environment; and participating as dependable team members.

GRADING SYSTEM:

A 90-100	B 80-89	C 70-79	D 60-69	F 0-59
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Whatever method of evaluation is used, it is understood that the instructor reserves the right to make necessary and reasonable adjustments to the evaluation policies outlined.

ART 126 may not be repeated for credit. This course may not be audited.

8. JUSTIFICATION:

- A. ART 126 is a required course in the Associate in Science degree in New Media Arts with a specialization in Animation.
- B. The content for this class is directly based on the content of ART 192D Topics in New Media. A new course number and name has been given to this course content to eliminate confusion over the multiple usage of the Art 192 Topics in New Media Techniques number. The content will remain the same as the current course content for ART 192D.
- C. This has not been offered as an experimental course at KCC.
- D. This course will not decrease or increase the number of required credits for an AS degree in NMA.

9. RESOURCE REQUIREMENTS:

This class requires the use of a multimedia computer lab with Internet connectivity, graphical software and a presentation system for class presentation. These resources are currently being met through existing resources in the NMA labs.

This course does not impact other department course offerings.

The maximum enrollment per class section is fifteen students. It is estimated that one section will be offered per semester.

10. ARTICULATION:

- A. This course is new and is not offered at other UH campuses.
- B. This course is appropriate for articulation with UH Manoa General Education Core Requirements. Students would receive credit in the area of Diversification Arts (DA).

- C. This course is appropriate for articulation with the UHM Academy for Creative Media and with Art Departments/Programs throughout the UH System through the University of Hawai'i System Articulation Agreement: ART.