DES M137: BIOTECHNOLOGY MEDIA DESIGN

Originator
skasalovic

Co-Contributor(s)

Name(s)
Lizee, Erika (elizee)
Mora, Priscilla (pmora)

College
Moorpark College

Attach Support Documentation (as needed)
BioTechnology Media Design .docx

Discipline (CB01A)
DES - Design

Course Number (CB01B)
M137

Course Title (CB02)
Biotechnology Media Design

Banner/Short Title
Biotech Media Design

Credit Type
Credit

Honors
No

Start Term
Fall 2022

Catalog Course Description
Emphasizes the fundamental digital media skills required to design and create professional media products for the BioTech field. Focuses on conceptual pathways related to interdisciplinary STEAM fields (Science, Technology, Engineering, Art & Math); experiments with mixed digital arts and media, including 3D modeling. Explores the importance of research, models, and props in the design and execution of the final product.

Taxonomy of Programs (TOP) Code (CB03)
0614.00 - *Digital Media

Course Credit Status (CB04)
D (Credit - Degree Applicable)

Course Transfer Status (CB05) (select one only)
B (Transferable to CSU only)

Course Basic Skills Status (CB08)
N - The Course is Not a Basic Skills Course

SAM Priority Code (CB09)
C - Clearly Occupational

Course Cooperative Work Experience Education Status (CB10)
N - Is Not Part of a Cooperative Work Experience Education Program

Course Classification Status (CB11)
Y - Credit Course

Educational Assistance Class Instruction (Approved Special Class) (CB13)
N - The Course is Not an Approved Special Class

Course Prior to Transfer Level (CB21)
Y - Not Applicable

Course Noncredit Category (CB22)
Y - Credit Course

Funding Agency Category (CB23)
Y - Not Applicable (Funding Not Used)

Course Program Status (CB24)
1 - Program Applicable

General Education Status (CB25)
Y - Not Applicable

Support Course Status (CB26)
N - Course is not a support course

Field trips
May be required

Grading method
(L) Letter Graded

Alternate grading methods
(O) Student Option- Letter/Pass

Does this course require an instructional materials fee?
No

Repeatable for Credit
No

Is this course part of a family?
No

Units and Hours

Carnegie Unit Override
No

In-Class

Lecture
Minimum Contact/In-Class Lecture Hours
35
Maximum Contact/In-Class Lecture Hours
35

Activity

Laboratory
Minimum Contact/In-Class Laboratory Hours
52.5
Maximum Contact/In-Class Laboratory Hours
52.5

Total in-Class

Total in-Class
Total Minimum Contact/In-Class Hours
87.5
Total Maximum Contact/In-Class Hours
87.5

Outside-of-Class

Internship/Cooperative Work Experience

Paid

Unpaid

Total Outside-of-Class

Total Outside-of-Class
Minimum Outside-of-Class Hours
70
Maximum Outside-of-Class Hours
70

Total Student Learning

Total Student Learning
Total Minimum Student Learning Hours
157.5
Total Maximum Student Learning Hours
157.5

Minimum Units (CB07)
3
Maximum Units (CB06)
3

Prerequisites
DES M120 (formerly GR M23) or DES M121 (formerly MM M10)

Entrance Skills
Entrance Skills
DES M120 (formerly GR M23) or DES M121 (formerly MM M10)

Prerequisite Course Objectives
DES M120-identify and analyze hardware and software technologies including the operating systems, scanners, digital cameras, image manipulation, vector-versus-bitmap artwork concepts, text and font management, and color and output.
DES M120-discuss the history of digital media, explain the key concepts, and define the digital media arts terminology.
DES M120-apply storyboarding and thumbnail sketching techniques to express personal ideas, subjective visions, and informed opinions through the design process.
DES M120-draw, scan and manipulate images as design elements to create designs for print and web, motion, and interactive design.

DES M120-define and produce appropriate resolution and digital file formats for output to various media.
DES M120-demonstrate proficiency working with digital technologies to input and manipulate images and use various software programs for the development of individual projects.
DES M120-explain copyright law and intellectual property rights as they apply to digital media arts.
DES M121-discuss the artistic and technological aspects of digital media in both historical and contemporary contexts.
DES M121-demonstrate the ability to present and discuss work in a professional manner, using appropriate digital media vocabulary.
DES M121-apply pre-visualization techniques to communicate design concepts for print and screen.
DES M121-create and edit media using industry-standard software applications.
DES M121-identify and explore career and educational paths in digital media.
DES M121-apply professional workflows for designing and producing digital media from conception to completion.
DES M121-identify aesthetic, technological, and social criteria, as well as professional ethics, in evaluating digital media.

Requisite Justification

Requisite Type
Prerequisite

Requisite Description
Course in a sequence

Level of Scrutiny/Justification
Part of a sequence of courses in a certificate of completion or a certificate of competency (noncredit only)

Student Learning Outcomes (CSLOs)

	Upon satisfactory completion of the course, students will be able to:
1	demonstrate knowledge of the implications of market trends on the needs and evolving styles within the biotechnology media industry.
2	develop materials utilizing advanced principles of design and application of digital media in the biotechnology field.
3	create a professional portfolio that includes examples of vector objects, rasterized images, digital illustrations, graphics and animations related to the biotechnology field.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1	create digital images of the skin, surface, deep and skeletal muscles.
2	create digital images from pencil drawings of specific anatomy and physiology elements.
3	create a digital file of particular cell and biological functions
4	create a 3D model showing the anatomy of a human organ.
5	create a 3D animation showing how the human circulatory system works.
6	analyze and respond efficiently to specific needs of clients from the field of biotechnology.
7	select and use appropriate software and apply conceptual thinking skills to solve problems and generate specific digital media projects.

Course Content

Lecture/Course Content
(10%) 1. Design Process
  • Concept, production, and publication
  • Visual research
  • Thumbnails and comprehensives
  • Critiques and revision
  • Software Choices
(10%) **2. Fundamentals of BioTech Digital Design**

- Formal elements
- Principles of design
- Terminology

(15%) 3. Digital Tools - Illustrator
- Vector drawing tools; Beziér curves
- Gradient/Mesh
- Layers

(15%) 4. Digital Tools - Photoshop
- Raster imaging tools; brushes
- Line drawings/Tracing
- Layers

(20%) 5. Digital Tools - 3D
- Animation principles
- Lighting techniques
- WireFrame Layers

(10%) 6. Fundamentals of Anatomy - Vector & Raster
- Skeletal
- Deep Muscle/Surface Muscle
- Skin

(10%) 7. Fundamentals of Biology - Vector & Raster
- Cell Structure
- Cell Function
- Cellular Communication

(10%) 8. Fundamentals of Physiology - Vector & Raster
- Organs/Organ Function
- Brain/Electrical System
- Mechanical Systems

Laboratory or Activity Content

(20%) Editing and retouching images, and drawing vector-based illustrations
(10%) Critiques of design projects
(40%) Exercises focusing on tools and techniques
(30%) Creating 3D models and animations based projects

Methods of Evaluation

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):

Written expression
Skills demonstrations

Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):

Graphic/architectural designs
Group projects
Portfolios
Quizzes
Reports/papers
Simulations
Skills demonstrations

Instructional Methodology

Specify the methods of instruction that may be employed in this course

Audio-visual presentations
Case studies
Class activities
Class discussions
Demonstrations
Distance Education
Group discussions

Instructor-guided interpretation and analysis
Instructor-guided use of technology
Web-based presentations

Describe specific examples of the methods the instructor will use:
Lectures may include demonstration, video tutorials, and pdf handouts.

Representative Course Assignments

Writing Assignments
- Describe and analyze professionally animated human body organs for accuracy and impact.
- Compose a written critique of peers' projects.

Critical Thinking Assignments
- Analyze own and classmates' work in the context of societal and cultural concerns.
- Select and use appropriate software and apply conceptual thinking skills to solve problems and generate digital media projects that address the client's needs.

Reading Assignments
- Using the online library, research career options, salaries, and qualification; then create journal of entries.
- Read "The Sick Rose or; Disease and the Art of Medical Illustration" written by Richard Barnett, an academic medical historian, illustrated with images from some of the world's rarest medical books from the Wellcome Collection, and designed by Jonathan Barnbrook. This will prepare you for class discussion about visual representation of disease in an age before color photography and digital media.

Skills Demonstrations
- Trace samples of human organs images with the Pen tool in Illustrator.
- Apply 12 principles of animation to create and animate believable bodily functions.

Outside Assignments

Representative Outside Assignments
Interview a peer from the Moorpark College Biotechnology program to get their input about the relationship between design and media arts and biotechnology.
Research local biotechnology industry leaders (Amgen, Takeda, Thermo Fisher Scientific, and others).

District General Education

A. Natural Sciences

B. Social and Behavioral Sciences

C. Humanities

D. Language and Rationality

E. Health and Physical Education/Kinesiology

F. Ethnic Studies/Gender Studies

CSU GE-Breadth

Area A: English Language Communication and Critical Thinking

Area B: Scientific Inquiry and Quantitative Reasoning

Area C: Arts and Humanities

Area D: Social Sciences

Area E: Lifelong Learning and Self-Development

Area F: Ethnic Studies

CSU Graduation Requirement in U.S. History, Constitution and American Ideals:

IGETC

Area 1: English Communication

Area 2A: Mathematical Concepts & Quantitative Reasoning

Area 3: Arts and Humanities

Area 4: Social and Behavioral Sciences

Area 5: Physical and Biological Sciences

Area 6: Languages Other than English (LOTE)

Textbooks and Lab Manuals

Resource Type
Textbook

Classic Textbook
Yes

Description
McMillan, Beverly. *The Illustrated Atlas of the Human Body.* Weldon Owen, 2009.

Resource Type
Textbook

Classic Textbook
Yes

Description
Barnett, Richard. *The Sick Rose: Disease and the Art of Medical Illustration.* Distributed Art Publishers, 2014.

Resource Type
Textbook

Description
Netter, Frank H. *Atlas of Human Anatomy.* 7th ed., Elsevier, 2018.

Library Resources

Assignments requiring library resources
Research using the Library's print and online resources.

Sufficient Library Resources exist
Yes

Example of Assignments Requiring Library Resources
Utilize library resources to research and create an animation on transporting cholesterol around the body.

Distance Education Addendum

Definitions

Distance Education Modalities
Hybrid (1%–50% online)
Hybrid (51%–99% online)
100% online

Faculty Certifications

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.
Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.
Yes

Regular Effective/Substantive Contact

Hybrid (1%–50% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Discussion Forums will be used to disseminate course-wide information and facilitate ongoing collaborative course work. Students may also use the Discussion Forums to solicit help from the instructor and other students. Discussions may also be graded encouraging students to participate in the class.
E-mail	Email is a tool primarily used for course-wide updates and individual student contact. Students and the instructor can privately contact each other with questions, concerns.
Other DE (e.g., recorded lectures)	The instructor can provide text, presentation slides, audio/visual material, assignment examples, tutorials (which may be live or recorded), and links to supplemental publications, articles, and websites.

Hybrid (51%–99% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Discussion Forums will be used to disseminate course-wide information and facilitate ongoing collaborative course work. Students may also use the Discussion Forums to solicit help from the instructor and other students. Discussions may also be graded encouraging students to participate in the class.
E-mail	Email is a tool primarily used for course-wide updates and individual student contact. Students and the instructor can privately contact each other with questions, concerns.
Other DE (e.g., recorded lectures)	The instructor can provide text, presentation slides, audio/visual material, assignment examples, tutorials (which may be live or recorded), and links to supplemental publications, articles, and websites.

100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Discussion Forums will be used to disseminate course-wide information and facilitate ongoing collaborative course work. Students may also use the Discussion Forums to solicit help from the instructor and other students. Discussions may also be graded encouraging students to participate in the class.
E-mail	Email is a tool primarily used for course-wide updates and individual student contact. Students and the instructor can privately contact each other with questions, concerns.
Other DE (e.g., recorded lectures)	The instructor can provide text, presentation slides, audio/visual material, assignment examples, tutorials (which may be live or recorded), and links to supplemental publications, articles, and websites.

Examinations

Hybrid (1%–50% online) Modality
Online

Hybrid (51%–99% online) Modality
Online

Primary Minimum Qualification
GRAPHIC ARTS

Additional Minimum Qualifications

Minimum Qualifications
Multimedia

Review and Approval Dates

Department Chair
05/05/2021

Dean
05/07/2021

Technical Review
09/16/2021

Curriculum Committee
10/19/2021

DTRW-I
10/28/2021

Curriculum Committee
MM/DD/YYYY

Board
12/14/2021

CCCCO
MM/DD/YYYY

DOE/accreditation approval date
MM/DD/YYYY