**CTE** **Model** **Curriculum** **Worksheet**

Title: **BioTechnology** **Media**

Total units **16.5** *(all* *units* *are* *semester* *units)*

Award Type (*indicate* *one)*:

\_\_\_AA \_\_\*AS \_\_Low-Unit Certificate \*AS should be used for CTE and STEM.

**“Core”** **Courses:**

\_X\_\_Certificate (≥12units)

**10.5** units

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| --- | --- | --- |
| **Title** **(units)** | **C-ID** **Designation** | **Rationale** |
| Intro to Digital Media (3) | DMGR 100 X | Industry Standards & Expectations |
| Design Principles (3) | DMGR 110 X | Industry Standards & Expectations |
| Intro to Social Media (3) | DMGR 120 X | Industry Standards & Expectations |
| DM Business Basics & Portfolio (1.5) | DMGR 130 X | Industry Standards & Expectations |

**Select ALL courses from the following:** **6** units

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| Digital 3D Modeling (3) | See Sample Course | Autodesk Maya |
| Intro to BioTechnology Design (3) | See Sample Course | Fundamentals of creating digital media and working in the BioTechnology Field |

**FIRST SEMESTER EXAMPLE**

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| Intro to Digital Media (3) | DMGR 100X |  |
| Intro to BioTechnology Design (3) | See Sample Course |  |

**FINAL SEMESTER EXAMPLE**

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| Digital 3D Modeling (3) |  |  |
| DM Business Basics & Portfolio (1.5) | DMGR 130X |  |
| Intro to Biotechnology Design (3) | See Sample Course |  |

**INTRO TO BIOTECHNOLOGY DESIGN - SAMPLE COURSE**

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| Discipline: Digital Media Graphics (DMGR) | Proposed Sub-discipline (if applicable): | |
| General Course Title: **Intro to BioTechnology Design** | | Min. Units 3 |
| **GENERAL COURSE DESCRIPTION**  This course emphasizes the foundational digital media skills required to design and create professional media products for the BioTech field. Students will develop conceptual pathways related to interdisciplinary STEAM fields, experiment with mixed digital media, including 3D modeling, and discuss the importance of research, models, and props in the design and execution of the final product. Career options, self-promotion, and practical application of digital media skills will also be discussed. | | |
| **JUSTIFICATION**  In order to keep up with demand, companies in LA and Orange Counties are in need of BioTech Digital Media Designers with a combination of human anatomy understanding combined with creative digital media skills. The principle task of a BioTech Digital Media Designer is to communicate somewhat complex scientific concepts in simple clear, well designed, creative images. These images and 3D multimedia products are designed, then produced for the full spectrum of media distribution in various digital media formats. This course will also blend interdisciplinary curriculum between human anatomy/ biology courses and digital media. | | |
| Required Prerequisites: | | |
| **COURSE CONTENT**  Lecture  1. Design Process  • Concept, production, and publication  • Visual research  • Thumbnails and comprehensives  • Critiques and revision  • Software Choices  2. Fundamentals of BioTech Digital Design  • Formal elements  • Principles of design  • Terminology  3. Digital Tools - Illustrator  • Vector drawing tools; pen Beziér curves  • Gradient/Mesh  • Layers  4. Digital Tools - Photoshop  • Raster imaging tools; brushes  • Line drawings/Tracing  • Laboratory Activities: (if applicable)  • Layers  5. Digital Tools - 3D  • Animation principles  • Lighting techniques  • Wire Frame Layers  6. Fundamentals of Anatomy - Vector & Raster  • Skeletal  • Deep Muscle/Surface Muscle  • Skin  7. Fundamentals of Biology - Vector & Raster  • Cell Structure.1  • Cell Function  • Cellular Communication  8. Fundamentals of Physiology - Vector & Raster  • Organs/Organ Function  • Brain/Electrical System  • Mechanical Systems  9. Portfolio Design  • A. Online Portfolios  • B. Career Options/Marketing  • C. Delivery/Distribution Methods | | |
| **COURSE OBJECTIVES**  *At the conclusion of this course, the student should be able to:*  1. Design, create and execute digital images using graphic software of skin, surface, deep and skeletal muscles  2. Design, create and execute a digital file from pencil drawing of the brain  3. Design, create and execute a digital file of particular cell functions. | | |
| **METHODS OF EVALUATION**   1. Written Assignments 2. Projects (individual/ group) 3. Problem Solving Exercises 4. Demonstration of Critical Thinking 5. Midterm - Submit & showcase digitally created pieces based on specific elements for skills acquired to date. 6. Final: Submit a 10 piece professional online portfolio including examples of; raster images, digital drawings, and 3D elements depicting anatomy, biology and physiology topics. | | |

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| **TEXTBOOKS**  *Bio Design: Nature + Science + Creativity*  **-OR-**  *Synthetic Aesthetics: Investigating Synthetic Biology's Designs on Nature*  **-OR-**  *BioArt* |

**DIGITAL 3-D MODELING - SAMPLE** **COURSE**

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| Discipline: Digital Media Graphics (DMGR) | Proposed Sub-discipline (if applicable): | |
| General Course Title: **Digital 3D Modeling** | | Min. Units 3 |
| **GENERAL COURSE DESCRIPTION**  This hands-on introductory course provides a basic overview of the tools used in the creation of 3D digital animation. Topics covered include modeling, character rigging, animation, shading, lighting and rendering. This course emphasizes the fundamental concepts of 3D digital animation as well as an understanding of the industry standard software. | | |
| **JUSTIFICATION**  3D modeling is a highly desired skill in the industry of advertising, filmmaking, web development and gaming. | | |
| Required Prerequisites: | | |
| **ADVISORIES/ RECOMMENDED PREPARATION**  Beginning Figure Drawing  Beginning Sculpture  Basic Design & Color | | |
| **COURSE CONTENT**  • Pre-Production  • Storyboard Interpretation  • The 3D Process  • The 3D Space  • Modeling Expanded  • Shading Expanded  • Lighting Expanded  • Animation Expanded  • Rendering Expanded  • Post Production  • Major Historical Innovations  • Portfolio | | |
| **COURSE OBJECTIVES**  *At the conclusion of this course, the student should be able to:*   1. Compose a lighting scheme appropriate for the subject, the action and the mood required by the assets and construct camera compositions with the settings, size and angle required. 2. Evaluate 3D animation's most important innovations throughout its history, giving examples where a new development influenced the nature of content and delivery. 3. Construct and customize an ever-improving portfolio that represents the very best work possible. | | |
| **METHODS OF EVALUATION**  · Written Assignments  · Projects (solo/group)  · Problem Solving Exercises  · Quizzes/Exams | | |
| **TEXTBOOKS**  OER Materials  **-OR-**  *Autodesk Maya Basic Guide*  by K. L. Murdock  SDC Publications | | |