This course is an advanced digital lab class in the use of digital media tools to create and commutate human anatomy and science. It is taught in conjunction with anatomy for design. The course is designed for students who are interested in a variety of design related fields for the medical, biotechnical, and medical information services industries. The course will use, but not be limited to Adobe creative cloud, Autodesk 3D modeling software, mobile apps and related products. These digital media and computer technologies will be used to create images and designs based on human anatomy, physiology and mechanics.

JUSTIFICATION FOR COURSE:

PREREQUISITES:
- DART G195: Introduction to Biotechnology Media Design with a minimum grade of C or better

COREQUISITES:
- DART G290: Digital Design for Human Anatomy

ADVISORIES:

ASSIGNED DISCIPLINES:
- Graphic arts (desktop publishing)
- Multimedia

MATERIAL FEE: Yes [ ] No [X] Amount: $0.00

CREDIT STATUS: Noncredit [ ] Credit - Degree Applicable [X] Credit - Not Degree Applicable [ ]

GRADING POLICY: Pass/No Pass [ ] Standard Letter [X] Not Graded [ ] Satisfactory Progress [ ]

OPEN ENTRY/OPEN EXIT: Yes [ ] No [X]

TRANSFER STATUS: CSU Transferable[X] UC/CSU Transferable[ ] Not Transferable[ ]

BASIC SKILLS STATUS: Yes [ ] No [X] LEVELS BELOW TRANSFER: Not Applicable

CALIFORNIA CLASSIFICATION CODES: Y - Not Applicable

NON CREDIT COURSE CATEGORY: Y - Not applicable, Credit Course

OCCUPATIONAL (SAM) CODE: C

REPEATABLE ACCORDING TO STATE GUIDELINES: No [X] Yes [ ] NUMBER REPEATS:

REQUIRED FOR DEGREE OR CERTIFICATE: No [ ] Yes [X]

GE AND TRANSFER REQUIREMENTS MET:
COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:

1. A. Utilize Adobe Photoshop and related products for science communications and design
   B. Identify college and career pathways in the biological design fields
   C. Incorporate interdisciplinary thinking into design production of science communications
   D. Utilize teamwork skills to designing medical products that solve real life medical situations.
   E. Use mobile design tools to create medical and life science designs.

COURSE OBJECTIVES:
1. Recount various aspects of digital design as it applies to careers in the medical, biotechnology and information technology industries.
2. Synthesize designs through the use of digital media arts software knowledge as it applies to anatomy, physiology, biomechanics and related subjects
3. Apply project based learning skills, collaboration in development of concepts, and creativity in the execution of science communication media and images based on human anatomy.
4. List and describe medical and life science markets, size, location and specialties.
5. Utilize skills gained to create digital media for medicine and science mobile apps.

COURSE CONTENT:

LECTURE CONTENT:

I – The Structure of DNA
   1. History of Science Communications
   2. Lecture connection: Present and assign DNA based project image.

II – Cell Anatomy
   1. Industry Overview – Market Segments - Jobs
   2. Lecture connection: Present and assign cell structure and function based project image

III – Tissue Anatomy
   1. Ted Talks - Visualization
   2. Lecture connection: Present and assign tissue function based project image

IV – Integumentary System
   1. Ted Talks - Creativity
   2. Lecture connection: Present and assign dermis based project image

V – Skeletal System
   1. History: Artificial joints
   2. Lecture connection: Present and assign Skeletal based project image

VI – Muscular System
1. Ted Talks - Exoskeletons
2. Lecture connection: Present and assign muscular based project image

**VII – Nervous System**
1. Ted Talks – Grab a pixel
2. Lecture connection: Present and assign human brain based project image

**VIII – Cardiovascular System**
1. History – Artificial Heart
2. Lecture connection: Present and assign heart anatomy based project image

**IX – Respiratory System**
1. Biomimicry
2. Lecture connection: Present and assign lung anatomy based project image

**X – Digestive System**
1. GERD - Omeprazole
2. Lecture connection: Present and assign Stomach Illustration

**XI – Urinary System**
1. History of Kidney Transplant
2. Lecture connection: Present and assign Urinary Tract Illustration

**XII – Reproductive System**
1. History of Kinney transplant
2. Lecture connection: Present and assign reproductive Tract Illustration

**LABORATORY CONTENT:**

**I – The Structure of DNA**
1. History of Science Communications
2. Lecture connection: Present and assign DNA based project image.

**II – Cell Anatomy**
1. Industry Overview – Market Segments - Jobs
2. Lecture connection: Present and assign cell structure and function based project image

**III – Tissue Anatomy**
1. Ted Talks - Visualization
2. Lecture connection: Present and assign tissue function based project image

**IV – Integumentary System**
1. Ted Talks - Creativity
2. Lecture connection: Present and assign dermis based project image

**V – Skeletal System**
1. History: Artificial joints
   2. Lecture connection: Present and assign Skeletal based project image

**VI – Muscular System**
1. Ted Talks - Exoskeletons
   2. Lecture connection: Present and assign muscular based project image

**VII – Nervous System**
1. Ted Talks – Grab a pixel
   2. Lecture connection: Present and assign human brain based project image

**VIII – Cardiovascular System**
1. History – Artificial Heart
   2. Lecture connection: Present and assign heart anatomy based project image

**IX – Respiratory System**
1. Biomimicry
   2. Lecture connection: Present and assign lung anatomy based project image

**X – Digestive System**
1. GERD - Omeprazole
   2. Lecture connection: Present and assign Stomach Illustration

**XI – Urinary System**
1. History of Kidney Transplant
   2. Lecture connection: Present and assign Urinary Tract Illustration

**XII – Reproductive System**
1. History of Kinney transplant
   2. Lecture connection: Present and assign reproductive Tract Illustration

**METHODS OF INSTRUCTION:**

**A. Lab:**

**INSTRUCTIONAL TECHNIQUES:**

In class creation of digital media images and designs based on outline of Anatomy for design COR

**COURSE ASSIGNMENTS:**

**Reading Assignments**

Web based research on specific anatomical structures and functions, as well as review of existing styles of science communications

Youtube videos on specific subject matter connected to the Lecture portion of 290, Digital Design for anatomy.

**Out-of-class Assignments**

Digital media production using Adobe Creative Cloud Apps, such as Photoshop and related products.

Each student will be required to produce one image based on the current anatomical subject covered in the lecture portion of the class, as it s was reintroduced and discussed in the lab portion of the class.

**Writing Assignments**

Occasional short reports of influential figures from history as they relate to the current subject.

**METHODS OF STUDENT EVALUATION:**

Projects (ind/group)
**Demonstration of Critical Thinking:**

Design for science. Visual problem solving and creation. Assessment is based on instructor observation in lab, student production of artwork and designs, and ultimately a portfolio review.

Each student will be required to submit weekly digital media assignments that are based on the anatomical subject matter presented in the lecture and reintroduced in the lab.

Each student will be required to partake a weekly class critique of their work, and the classes work.

**Required Writing, Problem Solving, Skills Demonstration:**

In class demonstration and participation in critiques, research and discussion of possible solutions

**TEXTS, READINGS, AND RESOURCES:**

**Software:**

**LIBRARY:**

Adequate library resources include:

**Comments:**

**Attachments:**

[Attached Files]