New York City College of Technology
THE CITY UNIVERSITY OF NEW YORK

Communication Design Department
CDMG 1111 DIGITAL MEDIA FOUNDATIONS FALL 2019

Course Description

This course introduces students to core concepts underlying all digital media — graphic design, web, broadcast, animation, illustration and game design—that the COMD department offers in its associate and bachelor degree program. Weekly lectures explain technical concepts such as resolution, compression, and color space, concepts that allow students to produce creative work across media with more predictable results. Students work with a variety of graphic arts software programs to reveal how the software application's tools and menus incorporate the scientific principles discussed during lecture.

Because this course is designed as an orientation to various forms of media, lab exercises and assignments require students to explore industry sources, archives and association sites. One field trip is an integral part of the course so students can witness first-hand professional work in an artistic or commercial setting. Students produce one print design project and one three-minute video, both of which are posted on their Openlab site, along with an written explanation of how their work met the goals of the assignment. Both projects incorporate the technical and aesthetic knowledge discussed in lecture and practiced in laboratory exercises.

2 CL HOURS / 2 LAB HOURS / 3 CRS

Prerequisites CUNY proficiency in reading, writing and mathematics or concurrent enrollment in:
    ENG 092R, ESOL 022R or 032R
    ENG 092W
    ESOL 021W or ESOL 031W
    MAT 0630 or MAT 0650

Course Objectives
INSTRUCTIONAL OBJECTIVES
ASSESSMENT

For the successful completion of this course, students should be able to:
Evaluation methods and criteria
- (1) Gain an awareness of the media industry, and the design community by exploring industry, museum and association web sites and by attending one field trip.
- (1) Laboratory exercises, summaries of industry articles and Openlab blog posts.
- (2) Describe and explain the differences among key file formats for digital images, digital audio, digital video and print output
- (3) Laboratory exercises, design project, video project and Openlab site.
- (3) Demonstrate the ability to apply technical understanding of color space and color management to the production of their design project files and the posting of images on their open lab site.
- (4) Quizzes and exams, design project, video project and Openlab site.
- (4) Demonstrate descriptive and analytic verbal and writing skills by preparing one field trip report, one research report and participating in classroom critiques/discussions
- (5) Research report, lab exercises, design project, and Openlab site.
- (6) Demonstrate an ability to use the library's resources to find articles related to topics discussed in class. Develop an awareness of industry resources and publications.
- (6) Citation and documentation of supporting material, classroom presentation, article summaries and research report.
- (7) Understand the differences between proprietary and open source software tools & formats and understand the importance of using industry standards
- (7) Design project, video project research report, and Openlab site.

GENERAL EDUCATION OUTCOMES

How the outcome is assessed
Thinking Critically
The student will demonstrate the ability to determine whether certain conclusions or consequences are supported by the information provided.

Research Report, Design Project and Video Project
Writing
The student will demonstrate the ability to write clearly articulated thoughts in a professional, informed manner.

Research Report, Open Lab Site and Quizzes
Academic and Professional Reading
The student will demonstrate the ability to read pertinent information using industry-specific sources and academic sources.

Classroom Discussions and and Open Lab Site
Information Literacy
The student will demonstrate the ability to research subjects with alacrity, find proper resources and formulate relevant queries.

Research Report, Design Project and Video Project
Teaching/Learning Methods
The lecture section of this class is one hour with a two-hour lab component. The lecture may be taught in segments interspersed with hands-on exercises designed to clarify the lecture. The required text contains a number of hands-on interactive tutorials that may be utilized during lab sessions or may be assigned as homework. A list of vocabulary terms is attached to this outline and will be used on quizzes and other assessments. The laboratory portion of this class should involve a mix of student exploration, research, project work, peer-to-peer interaction and software exercises. This class is not designed to focus on learning any one software program but to illuminate the ideas underlying digital media software. Therefore, the class will introduce a mix of software packages including high-end professional graphics software such as CS5 software, shareware, freeware and apps for students to work with during lab sessions. Students will also be visiting several of the

college's labs during laboratory period for hands-on demonstrations of principles discussed in lecture. One field trip is also an integral part of this course for students to view the professional field beyond the college's campus.

OpenLab will be used for students to begin their own Eportfolio site but also to allow students to communicate across sections of CDMG 1111 creating, in effect, a learning community among all students enrolled in CDMG 11111 and the faculty teaching it. Although there will be flexibility in selecting the type of design and video project the students work on, all instructors of GDMG 1111 will expected to assess the same vocabulary and concepts in quizzes and exams to ensure that the ADGA department can assess learning across sections accurately. In addition, all instructors will be required to provide urls for student open lab sites to the ADGA department at the end of the semester so the department can evaluate student progress in this foundational course.

Required Text

WONG, YUE-LING. (2012).
Digital Media Primer
PEARSON PRENTICE HALL, 2ND EDITION

Periodicals/Websites

AIGA Design Archives, Society of Illustrators, SiGRRAPH, Computer Graphics World, How Design, Wired, New York Times, Creativity Online, World Wide Web Consortium, The Art Directors Club, CMYK magazine, Print, Printing News. Make Magazine, Whathteythink.com. Interactive Advertising Bureau, Society for Publications Designers, et al. Gamedev.net, Gamasutra

Attendance (College) and Lateness (Department) Policies

A class roster roll will be taken at the beginning of each class. **Only two absences may be allowed.** After two absences, a student may be withdrawn because of unsatisfactory attendance **(code WU)**. Students arriving after the roll is taken will be marked "late." Students may be notified at the earliest opportunity in class after they have been absent or late. After being absent two times or equivalent (2 lateness = 1 absence), a student may be asked to withdraw from the class **(code W before the College drop deadline)** or may be withdrawn from the class **(code WU).**

Academic Integrity Standards

You are responsible for reading, understanding and abiding by the NYC College of Technology Student Handbook, "Student Rights & Responsibilities," section "Academic Integrity Standards." Academic dishonesty of any type, including cheating and plagiarism is unacceptable. "Cheating" is misrepresenting another student's efforts/work as your own. "Plagiarism" is the representation of another person's work, words or concepts as your own.

Grading

- Research Report   10%
- Quizzes   10%
- Open Lab Eportfolio Site   25%
- Design Project   20%
- Final Exam   25%
- Video Project   10%

Course Outline

Topics

WEEK

Lecture Topic

Laboratory Exercise

Homework Assignment

1 **Overview/Orientation**: Explanation of different modules the department offers and the various websites and resources the students can explore for each area of communication design. Discussion of fundamental distinction between analog and digital data.

* Read Chapter One pages 1 to 12 "Background" in Digital Media Primer.
* Decimal to Binary conversion Exercise

2 **The Design Process-Preproduction, Production and post-production**: Lectures highlights these three phases as key to all media projects and identifies professional software tools used in production and post-production for different media. Technical Terms such as bits and bytes, relating to all digital media introduced and explained. Lecture should incorporate a case study of the three different phases of multi-channel campaigns.

- Examine Hard drive space in bytes and gigabytes
- Save text file in ASCII vs. Plain Text vs. RTF to understand distinctions in file size.
- Save QuickTime movies provided using different compression methods and compare file size and playback.
- Students create their Openlab profile and select their template on the Openlab site.
- Sign up with stock agencies such as Veer or Corbis and download two photographic images of instructor selected topic in both high-res and low-resolution. Bring in both images to class on disk, noting both file format and different file size for each image in Photoshop.
- Finish Chapter One in Digital Media Primer.
- Write Openlab bio 1st draft
- Students develop concepts on paper for banner of home page of their blog on Openlab.

3 Type Formats and Bitmap & Vector Image Formats

- Open type, Postscript Type I and Truetype fonts
- Sampling and quantizing in image capture
- Pixels, image resolution, resampling and bit depth

* Raster vs. vector graphics

- Key features of image file formats
- Adjusting resolution, file type and compression in Photoshop for 72, 150 and 300 ppi. Files will be saved as JPEG, JPEG 2000, TIFF, EPS, and GIF for comparison.
- Rasterize a vector logo and compare both versions on screen and on b/w laser prints
- Convert type set in InDesign to outlines.
- Photo taken in class by each student for Openlab profile using IPhone. Students take these photos to create JPEG and GIF for uploading to page,
- Read Chapter Two "Fundamentals in Digital Imaging" pages 23-38 in Digital Media Primer

- Read the section "About fonts" at http://www.microsoft.com/typography/default.mspx and http://support.apple.com/kb/HT2435
- Work on developing banner for open lab blog home page.
- Upload draft bio copy for Openlab blog home page.
- Upload GIF or JPEG file to Openlab profile.

4. **Color Theory Basics:** Relationship of light to color, colors in the visual spectrum identified. Terms such as nanometers and kelvin defined and the eye's anatomy as it relates to color explained. The four key color spaces for media are introduced and explained. Issues of color perception discussed in light of aesthetic choices.

- Online color perception quiz at Xrite.com.
- View printed samples in color lab under different lighting conditions to illustrate on how light influences color. Color illusions are examined both in interactive tutorial on the web and also in printed material to show surrounding colors and patterns can affect color perception. View same images on coated vs. uncoated paper.
- Make Virtual proofs in Photoshop based on different output conditions
- Print out CMYK vs. RGB images on laser printer for comparison
- Read Tutorial on Visual Display Calibration Assistant
- Read article from Before and After Magazine on Selecting Colors.
- Color Space and ICC profiles explained at http://www.youtube.com/watch?v=n1ONediDsSc & write a summary of this article.
- Upload banner to Openlab blog home page and revise bio copy.

* Begin research on selected topic from choices provided by instructor.

5. **Color Management- class** focuses on industry ISO standards and techniques for effectively controlling the subjective experience of color across color spaces. Software tools and measurement devices such as colorimeters and spectrophotometers are used to demonstrate monitor calibration during lecture

- Students learn to calibrate their monitor using Display Calibration Assistant on Mac
- Show visual comparison of color spaces in Color Sync Utility.

- Exercises in text on page 48 regarding switching color modes in Photoshop.
- Students learn to calibrate their monitors using colorimeters following procedures demonstrated in lecture.
- Read Chapter Two "Fundamentals in Digital Imaging" pages 38-51 in Digital Media Primer
- Read assigned articles on Color Management on website or industry periodical
- Find two articles in library's databases regarding color management and write a summary of these articles. Post summary on Openlab site.

6 **Print Media- Lectures** presents the development of Letterpress printing as a turning point in history of western civilization. Major technologies used in the print industry today are covered during this class. Postscript as the PDL of high-end printing, and PDF as the file format for transmission of most printed documents highlighted as will discussion of how digital methods are mixed with traditional methods for many print products. Sustainable printing practices are discussed.

* Demonstration of one color Letterpress Printing. Students will make one letterpress print. Students will participate in a 4/c printing demonstration in Demo lab. These demonstration swill help student understand practical hand-on application of color theory.

- Students will trim pages in binding lab using paper cutters
- Students will create an InDesign document for a print layout to specified trim size and place one high-res photo and one vector file into this document with 2 lines of provided text and create a Press-Ready PDF of this file.
- Read Chapter Three "Fundamentals in Digital Imaging" pages 58 through 71 in Digital Media Primer.
- Read Assigned article on lecture topics from instructor-selected source

* Self-Test Exercise pages 78- 81 in Text.

- Print Design Project Assigned, Example: Visually Enhanced Quotation. Students' concepts Due in Two Weeks.

- Post final banner on open lab site.
- Outline for research report.

7 **Capturing & Editing Digital Images:** Lecture focuses on explaining the difference technologies in capturing images—scanning and digital photography —used in the industry today. Instructor explains professional Vocabulary of image editing such as cropping, tonal range, highlights, midtones and shadows, fills and strokes and demonstrates key tools in image editing and vector graphic programs.

- Examine the histogram of different images in Photoshop to see relationship between visual appearance of image and the histogram.
- Work on sketches for Print Design Project
- Make InDesign template for print design project

* Search for appropriate photographic imagery for project on stock photography sites. Evaluate images located on these sites with regard to tonal range, cropping and image resolution.

- Read Chapter Three "Fundamentals in Digital Imaging" pages 71 through 99 in Digital Media Primer.
- Work on Print Design Project.
- First Draft Research Report Due

8 **HTML & XHTML:** Historical context for development of the World Wide Web and HTML. Key differences between HTML and XHMTL. Instructor explains the basic structure of an HTML document and explains the concept of urls, file paths and cascading style sheets.

- Students examine the page sources code in different web browsers and note any differences they see
- Students hand code two html documents using basic html structure
- Students export a document in html format and xhml format
- Students work on print project in class, following principles learned in previous lectures.

Read Chapter Six "Fundamentals of Digital Video " pages 473 through 495 in Digital Media Primer.

- Students post final print design concepts on Openlab site in JPEG format for presenting to class in week 9
- Final Research Report Due.

9 **Digital Video:** Underlying principles of producing digital video such as broadcast standards, frame rate, scanning, overscanning and safe zones.
- Present Print Design Project in Class, showing JPEGs from blog site. Receive feedback from class.
- Students adjust a movie file in video editing software.

Read Chapter Six "Fundamentals of Digital Video " pages 164 through 198) in Digital Media Primer.

- Write interview questions for video interview assignment.

10 **Field Trip:** This trip should be to an exhibit such as AIGA 365 that covers all media or some other suitable exhibit that covers more than one media on exhibit. It can also be to a commercial production facility that works to prepare digital images for output in different formats.
- Students should shoot bring camera or phone with camera and video capabilities on trip, as trip will be documented on open lab site in both written and visual imagery.
- Student should write a 400-word field trip report Both PDF report and web site should contain relevant images from the trip with captions that explain concepts learned on trip.
- Post final print design project with descriptive copy on Openlab site.

11 **Digital Audio:** Lecture explains the underlying physics of our sensory experience of sound. Lecture introduces key terms such as frequency, pitch and decibel as well as identifying the key formats for sound in the industry and how one optimizes file size for these files.
- Lab exercise during lecture focuses on adjusting sound files with regard to compression, # of channels, sampling rate and bit depth.
- Eight-minute videos of student interviews shot during lab at different locations on campus.
- Read Chapter Four in Your Text " Fundamentals of Digital Audio: page 108 to 125.
- Review Audio Examples and Review Questions from Chapter 4 on your text's website.
- Post Field Trip report on open lab site.

12 <u>**HTML 5 Video and Audio & Introduction to Animation**</u>: Lecture identifies the new features of HTML5 and discusses how audio and video tags can be used in web pages. 2nd lecture topic is animation and distinguishes between frame by frame, scripted, and tweened animation. Frame rate and Frame size defined.

- Students Edit Interview movies to three minutes, editing scenes and applying one audio effect and two visual effects discussed during lecture.
- Create a simple animation in class using InDesign or shareware or IPad animation App.
- Read Chapter Fifteen in Your Text "HTML 5 Video and Audio page 500 to 511. Read Chapter 8 "The Multi-Media Authoring Process" pgs. 238 -247.
- Work on revisions to field trip report and on finalizing video project.

13 <u>**Interactive & Game Design**</u>: Lecture will provide a historical context for interactive and game design and then introduce basic principles of game design development.

- Join Second Life and create an avatar.
- Do a simple exercise using Gamemaker Studio
- Instruction Assigned Reading on Game Design from CGW or other industry site or publication
- Post animated GIF created in class on open lab site.
- Post video on Openlab site under Academic Examples.

14 <u>**3D Print**</u>: Covers type of file format, software and materials used in conjunction with the rapidly evolving desktop 3D print market. Demonstration of Google Sketchup.

• Demonstration of 3D printing in 3D print lab (or in Voorhees building until Pearl is ready)

• Work to develop simple 3D form in Google Sketch-up following exercise provided by instructor.

• Review for Final

• Readings from Wired Magazine, NY Times, and Make magazine regarding these areas of print/manufacturing.

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Final Exam