COURSE OUTLINE
GMMD 121
Programming for Visual Art and Design

Prepared By: Kathleen Mahoney
A. **TITLE:** Programming for Visual Art and Design

B. **COURSE NUMBER:** GMMD 121

C. **CREDIT HOURS:** 3

D. **WRITING INTENSIVE COURSE:** No

E. **COURSE LENGTH:** 15 weeks

F. **SEMESTER(S) OFFERED:** Fall and Spring

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   2 lecture hours per week, 2 studio hours per week

H. **CATALOG DESCRIPTION:**
   This course is an introductory course in programming languages and applications for visual art, design, and interactivity. Based in the processing language, coursework focuses on visual production and the use of outside and sensor data to produce visual work. Students are exposed to theoretical work on installations, performances and interaction design, as well as technical knowledge to better enable the student to build interactive media and spaces.

I. **PRE-REQUISITES/CO-REQUISITES:**
   Pre-Requisite: CITA 152 Computer Logic
   Co-Requisite: None

J. **GOALS (STUDENT LEARNING OUTCOMES):**
   By the end of this course, the student will be able to:

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<th>Course Objective</th>
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| a. Develop concepts via readings, lectures, class discussion and viewing interactive works | 2. Crit. Thinking  
3. Prof. Competence |
| b. Structure a basic installation, including video and/or animation                | 2. Crit. Thinking  
3. Prof. Competence |
| c. Structure a basic interactive installation, including video and/or animation     | 1. Communication  
3. Prof. Competence |
| d. Demonstrate the principles for writing for the internet and interactive media.  | 2. Crit. Thinking  
3. Prof. Competence |
| e. Demonstrate the use of advanced industry standard software for interactive installation. | 2. Crit. Thinking  
3. Prof. Competence |
K. **TEXTS:**

Space, Site, Intervention: Situating Installation Art, Erika Suderburg, Editor

Designing Interactions, Bill Moggridge

Digital Art, Christine Paul

L. **REFERENCES:**

M. **EQUIPMENT:** university supplied equipment, lab with processing, arduino software and boards, max/msp jitter,

N. **GRADING METHOD:** A-F

O. **MEASUREMENT CRITERIA/METHODS:**

I. Projects
II. Final Project
III. Exams
IV. Paper
V. Tutorials
VI. Participation

P. **DETAILED COURSE OUTLINE:** (must use the outline format listed below)

I. Week 1 - Introduction to class

II. Week 2 - Interaction, Data, Flow, Cycle, Max, Patch, Organization, Encapsulating Patches, Max Community Of Resources

III. Week 3 - Organization, Structure, Maxuino, Types of Sensors, Sensor Ranges, Max, Arduino and your Computer, Reading Assignment

IV. Week 4 - Still and Moving Image, Reading Sensor Data, Your sensor and its schematic, Maxuino Patch, Moving the Data Around

V. Week 5 - Sound, Data Smoothing, Noisy Data, what is that?, Streams of Numbers, Delays and Buckets Project #1 Critique

VI. Week 6 - Synthesis, Multiple Sensors, Multiple Sensors to one Arduino, Streams of Data, Misfiring/ Overlapping Ranges, Term Paper Due

VII. Week 7 - Midterm
VIII. Week 8 - Architecture of Data, Networked Data, What to not send across the network, OSC Route, UDP and Max

IX. Week 9 - Project #2 Critique

X. Week 10 - Wireless/ Large Spaces, Setting up a wireless Arduino, Dealing with cords for large spaces, When is it appropriate?

XI. Week 11 - Surveillance, Control, Computer Vision, Java Script/ Write your own objects, Regular Expressions

XII. Week 12 - Process, Creation, What’s Next in Max & P-comp?, Who’s doing interesting work, Open GL, Max for Live

XIII. Week 13 - Lab Days Final Project

XIV. Week 14 - Lab Days Final Project

XV. Week 15 - Final Project Critique

Q. LABORATORY OUTLINE: (If the course has a designated laboratory session this MUST be completed, follow the format for the detailed course outline listed above)