CGT 21500- Computer Graphics Programming I

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This course focuses on scripting and programming fundamentals, logic, and problem solving. A cross-section of languages and technologies will be introduced. The course provides the basis for developing object-oriented applications and how to write, compile, build, and debug an application.

Course Learning Outcomes

- Use and understand variables, decisions, loops, and arrays.
- Understand and implement 2D and 3D graphics for interactivity
- Be able to input external multimedia files into a programming environment
- Understand and implement basic concepts of Object-Oriented Programming
- Learn to write, develop and debug graphics applications

Philosophy

For this class you will be learning about Computer Graphics programming for design and visualization. You will learn about programming principles, as well as the process of implementation of multimedia software solutions. The course consists of 5 projects aimed to get you started with the exciting world of visual programming and interactivity. Learn about programming fundamentals in lectures and develop your own creativity as a result of working on your projects. For this course we will use Processing, a dialect of the Java programming language. Processing is a platform ideal for introducing programming for graphics because it makes it immediately available for those who are inexperienced with coding. Processing also provides built-in features for graphics and interactivity.

Course Textbook

Reas, Casey, & Fry, Ben (2010). Getting Started with Processing. Publisher: O'Reilly

Activities[1]

• Project 1-Vector Primitives	15%
• Project 2-Mailer Patterns	15%
• Project 3-Carnival Ride	15%
• Project 4-House function	15%
• Project 5-Final Project	15%
• Assignments	10%

[1] All projects and assignments must be submitted by the due date in Blackboard http://mycourses.purdue.edu/ to be eligible for a full credit

Course Schedule

Week	*Lecture*	*Lecture*	*Reading*	*Project due*
Week 1	01-Introduction	02-Installing Processing	Reas & Fry Ch 1-2	Assignment 1
Week 2	03-Geometric Primitives	04-Primitives in Processing 05-Project 1: Vector Primitives	Reas & Fry Ch 3	Assignment 2
Week 3	06-Structure	07- Variables	Reas & Fry Ch. 4	Project 1
Week 4	08-Arithmetic Operators	09- IF		Assignment 3
Week 5	10- OR - AND	11- Relational and Logical Operators		
Week 6	12- Practice Creating a Boundary	13- Loops		
Week 7	14- Geometric Transformations I	15- Geometric Transformations II 16- Project 2: Mailer Patterns		
Week 8	17- Digital Images	18- Raster File Formats	Reas & Fry Ch. 6	
Week 9	19- Vector File Formats	20- Color Systems		Project 2
Week 10	21- Mouse Pressed 22- Mouse Functions I	23- Mouse Functions II 24- Keyboard input	Reas & Fry Ch. 5	
Week 11	25- Input Text and Fonts	26- Functions 27- Project 3: Carnival Ride	Reas & Fry Ch. 8	Assignment 4
Week 12	28-Return Functions	29- Arrays	Reas & Fry Ch. 7	
Week 13	30- 3D Primitives 31- Project 4	32- 3D Shapes 33- Variable Vertices		Project 3
Week 14	34- OBJ Load	35- Objects I	Reas & Fry Ch. 9	Assignment 5
Week 15	36- Objects II	37- Final Project	Reas & Fry Ch. 10	Project 4 Assignment 6
Week 16	38-Extending processing	38-Extending processing		
Week 17				Project5