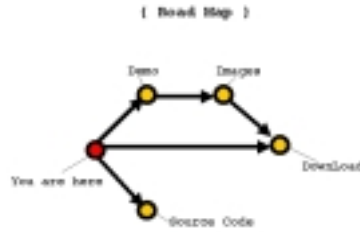


Arch 227B/Design C141/Design 241:



2D Graphics in Java

Fall 2000

Instructor

E-mail:

Class Notes:

Prerequisites:

Tue and Thu 12:30 - 2:00pm [CDA](#) Lecture Room

[Kostas Terzidis](#) 1124D Perloff Hall tel. 825-8004

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<http://www.cda.ucla.edu/caad>

none

This course introduces to the student basic concepts of programming for **2D graphics**. The objective is to teach to student with little or no prior experience in programming the basics theories and techniques for developing simple graphics applets/applications. During the course students will asked to solve simple programming exercises that eventually will be tied up into a graphics system that they can use as a background for developing thesis or studio tools. Specifically, in a one quarter period student will learn how to write code in Java for

- 2D curve/object/group internal representations
- Geometric and topological editing operations
- 2D transformations and alterations
- Basic Graphic User Interface (GUI) Design
- Basic computer graphics algorithms
- Basic native/DXF file input/output
- Image (pixel map) representation and analysis

Java has been chosen as the development language for its simplicity, portability, and its new features such as networking and threading. The course material is presented in the form of lectures and labs. The lectures cover theory topics and their objective is to give the basic concepts and the solution methods. The lecture topics are presented to the student in the form of slide shows or hands-on presentations. The labs are aimed to help student solve the exercises. The exercises are designed to do two things: make the student solve a problem within the context of a larger problem (i.e. code within code) or to develop a method of solving a problem completely as a new piece (i.e. addition to existing code). There will be a midterm and short quiz questions intending to establish and re-iterate concepts and methods taught in the lectures.

FALL 2000 SCHEDULE

Week 1: **Java basics/JBuilder basics:** Compiling, debugging, libraries, multi-file code.

Week 2: **Computer Language basics:** primitives, operators, statements, methods.

Week 3: **Object creation/internal representation:** Point, segment, curve, shape, group.

Week 4: **Transformations:** Matrices, translation, rotation, scaling, reflection.

Week 5: **User interface:** UI elements, graphics methods.

Week 6: **File I/O:** DXF read/write.

Week 7: **Mouse Events:** Animation, objects selection, sorting.

Week 8: **Topological editing/morphing:** Point, curve, shape manipulation.

Week 9: **Image representation:** pixel maps, basic image operations.

Week 10: **Simple 3D animation:** Threads, loops, XOR-ing.