

CATALOG INFORMATION

Dept and Nbr: MATH 38            Title: PASCAL PROGRAM-SCI  
Full Title: Pascal Programming for Science  
Last Reviewed: 6/28/2004

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	3.00		Contact DHR	52.50
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable  
Grading:            Grade Only  
Repeatability:    00 - Two Repeats if Grade was D, F, NC, or NP  
Also Listed As:  
Formerly:

**Catalog Description:**  
The solution of mathematical, scientific and engineering problems using the Pascal language. Emphasis on structured programming, including documentation, procedures, structured data types and pointer variables.

**Prerequisites/Corequisites:**  
MATH 27 (formerly MATH 57) or MATH 58 or four years of high school college preparatory mathematics with qualifying placement score, and a previous computer programming course with grades of "C" or better.

**Recommended Preparation:**  
Prerequisite courses taken within the last year. If a student's record shows a duplication of equivalent courses the most recent course must satisfy the prerequisite.

**Limits on Enrollment:**

**Schedule of Classes Information:**  
Description: Programming in the Pascal language for math, science & engineering. (Grade Only)  
Prerequisites/Corequisites: MATH 27 (formerly MATH 57) or MATH 58 or four years of high school college preparatory mathematics with qualifying placement score, and a previous

computer programming course with grades of "C" or better.

Recommended: Prerequisite courses taken within the last year. If a student's record shows a duplication of equivalent courses the most recent course must satisfy the prerequisite.

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>		<b>Effective:</b>	<b>Inactive:</b>
	B	Communication and Analytical Thinking	Fall 1981	Fall 2004
<b>CSU GE:</b>	<b>Transfer Area</b>		<b>Effective:</b>	<b>Inactive:</b>
	B4	Math/Quantitative Reasoning	Fall 1981	Fall 2004
<b>IGETC:</b>	<b>Transfer Area</b>		<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>			<b>Effective:</b>	<b>Inactive:</b>
<b>UC Transfer:</b>			<b>Effective:</b>	<b>Inactive:</b>

**CID:**

**Certificate/Major Applicable:**

Not Certificate/Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

To be successful, students should be able to:

1. Use structured programming (top down) techniques.
2. Use block structures, parameters and simple recursion to construct procedures and functions.
3. Use Pascal data types: including simple data types, defined scalar data types and structured data types (arrays, records, files & sets).
4. Use pointer variables: linked list, stack, queue and binary tree.
5. Write computer programs in Pascal to solve problems in mathematics and science. Program topics may be drawn from: algebraic and transcendental equation solutions, analytic geometry, statics, empirical probability simulation, and computations of numerical sequences and series.

### **Topics and Scope:**

1. Preliminary Concepts.  
Simple data type, assignment statement, I/O statements, control statements.
2. Procedures and Functions.  
Block structure, parameters, simple recursion.
3. Building Quality Programs.  
Documentation, structured programming, top down programming.
4. Additional Pascal Data Types.

- User defined scalar data types, structured data types including arrays, records, files, sets.
- 5. Pointer Variables.  
Linked list, stack, queue, binary tree.
- 6. Problem Solving Using Methods Such As.  
Simulation with random numbers, sorting, mathematical and scientific concepts.

### Assignment:

1. The student will have daily outside reading, programming assignments, problem set assignments from required text(s), or instructor chosen supplementary materials.
2. Instructional methodology may include, but not limited to: lecture, demonstrations, oral recitation, discussion, supervised practice, independent study, outside project or other assignments.

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab reports, Exams

Problem solving  
50 - 75%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Performance exams

Skill Demonstrations  
10 - 25%

**Exams:** All forms of formal testing, other than skill performance exams.

Multiple choice

Exams  
5 - 25%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Writing Assignments

Other Category  
0 - 15%

### Representative Textbooks and Materials:

Text(s) required of each student will be selected by the department, a committee of the department, or the responsible instructor from the books currently available. Choices in the past have included:  
Programming in Pascal by Dale; Heath Publishing, 1990.