

COURSE DESCRIPTION

Department and Course Number	CS 290	Course Coordinator	Vladimir Akis
Course Title	Introduction to FORTRAN Programming	Total Credits	2

Current Catalog Description:

Elementary computer programming using FORTRAN language. Lecture 1 hour, laboratory 3 hours. *No credit toward Computer Science major.*

Textbook:

Nyhoff & Leestma., "*FORTRAN 77 For Engineers and Scientists*", Fourth Edition, Prentice Hall, 1992.

References:

Reddy & Ziegler, West., "*FORTRAN 77 With Applications for Scientists and Engineers*, 2nd Edition, West Publishing Company, 1994.

Course Goals:

At the end of the course, students are able to

- Understand basic programming concepts.
- Divide a problem into its logical set of components.
- Understand how good program design reduces coding and debugging time.
- Design and code mid-level problems.

This course is offered as a service course for non CS majors.

Prerequisites by Topic:

Calculus up to antiderivatives.

Major Topics Covered in the Course:

- Introduction to Computer Systems, Programming, and Problem Solving.
- Fortran Syntax
- Algorithms
- Control Structures
- Functions
- Arrays
- Files

Laboratory Projects (specify number of weeks on each):

Weekly programming assignments on each of the topics listed below:

1. Program development using flowcharts.
2. Modular program development.
3. Programming using control statements.
4. Repetitions; loops.
5. Arrays, creating & using arrays.
6. Sequential files, using data files.

Estimate Curriculum Category Content (Quarter Hours)

Area	Service*	Area	Service*
Algorithms	0.25	Data Structures	0.25
Software Design	0.5	Prog. Languages	1.0
Comp. Arch.		Other	

Service* : This course is offered as a service course for non CS majors.

Oral and Written Communications:

Written documentation of software built in labs and homework assignments.

Social and Ethical Issues:

No significant component.

Theoretical Content:

Logic design and algorithmic development.

Problem Analysis:

In this course, students learn the basic concepts of the Fortran programming language. They learn algorithm development for structured programming, designing, coding, debugging, and documenting programs

Solution Design:

Solution design in this course mostly involves generating pseudo-code for program development. Students also learn how good program design reduces coding and debugging time.