

NUMERICAL ANALYSIS PROGRAMS IN FORTRAN

About the Program Disk

This README file gives instructions to the FORTRAN programs on the disk. These programs are designed to run on a minimally configured computer. Minimal hard disk space plus a FORTRAN compiler are all that is really needed. All of the programs are given as ASCII files. They can be altered using any editor or word processor that creates a standard ASCII file. These are commonly called a "Text Only" file. To run the programs you must have the appropriate software. The FORTRAN programs follow recognized standards for the FORTRAN language although you might need to change device numbers in READ or WRITE statements.

During the execution of some of the programs you will be asked questions of the form:

```
Has the function F been created in the program
immediately preceding the INPUT procedure?
```

To run the sample problems you should enter the response

```
"Y" (for Yes)
```

since the functions are embedded within the programs. The functions will need to be changed, however, if the programs are modified to solve other problems.

Some of the programs require the input of large amounts of data or generate extensive output. To enable the programs to be run quickly and efficiently, the input data can be placed in data files and the data files read by the program. When the output is likely to be extensive, the programs have been constructed so that it is convenient to place the output directly into an output file. The program will prompt you for the form of the input or output you would like to use. For example, when running the program for Neville's method, ALGO31.FOR, using the defined data file ALGO31.DTA for the sample problem, you will first see a screen that states:

```
Choice of input method:
1. Input entry by entry from the keyboard
2. Input data from a text file
3. Generate data using a function F
Choose 1,2, or 3 please
```

If you choose 1 you will need to enter all the data for the program from the keyboard, and any mistake in a data entry will require the program to be rerun. Choosing 2 will lead to the input of the data file ALGO31.DTA. Choosing 3 causes the program to ask if the function has been defined. If you answer "Y" (for Yes), the program will assume that the function has been defined in the program and will use that function to produce the required data. If you answer "N" (for No), the program will assume that you want to change the function before continuing. Execution will consequently terminate so that the correct function can be entered into the program. Once this has been done, the program can be rerun.