NAG Fortran Library

The NAG Fortran Library is the world's largest and most comprehensive numerical library. It contains over 1,600 routines that provide solutions to a vast range of mathematical and statistical problems. The NAG Fortran Library contains algorithms which are powerful, flexible and ready for use from a wide range of systems, languages, environments and packages including Excel, Java, MATLAB, .NET/C#, Python and many more.

NAG's numerical capabilities have become synonymous with quality and flexibility. There are many reasons for this including; the calibre of the expert contributors from within NAG, academia and industry; the extensive documentation that accompanies all of its software; the stringent verification process to which every algorithm is subject.

Using the NAG Fortran Library strengthens user capability in numerical and statistical areas such as:

- Optimization – local and global optimization solvers
- Ordinary and partial differential equations
- Wavelet transforms
- Option pricing
- Partial least squares and ridge regression
- Nearest correlation matrix
- Quantiles
- Mesh generation
- Numerical integration
- Roots of nonlinear equations
- Dense, banded and sparse linear equations
- Eigenvalue problems
- Linear and nonlinear least squares problems
- Special functions
- Curve and surface fitting and interpolation
- Large scale eigenproblems
- Large, sparse systems of linear equations
- Random number generation
- Simple calculations of statistical data
- Correlation and regression analysis
- Multivariate methods
- Analysis of variance and contingency table analysis
- Time series analysis
- Nonparametric statistics
- Copulas – Normal and Student's t
- Mixed effects regression

"You can't criticise the NAG Library – as far as numerical algorithms are concerned it IS the standard"

Barbara Raw
Program Now – The Advanced Programmers' Journal

nag® **Results Matter. Trust NAG.**

Key features

Mathematical and statistical functionality

NAG's collection of world-class numerical functions are organised into 47 Chapters, each devoted to a mathematical or statistical area. This makes algorithmic selection extremely easy.

Detailed documentation

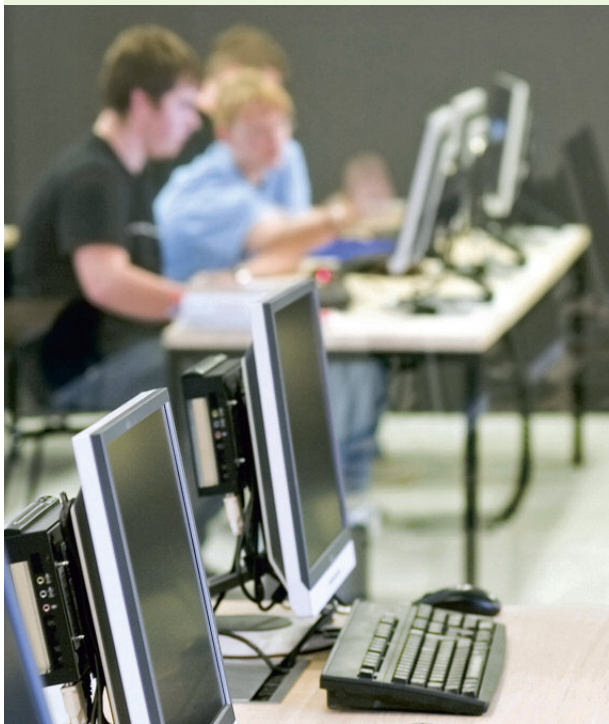
Each function is accompanied by expert documentation with advice on the selection of the best algorithm and the interpretation of the results returned.

Every function has an example program

Each NAG function has an example program to demonstrate how to access it by solving a sample problem. This template can then be easily adapted to reflect your specific problem and help you manage and analyse your data.

Quality assured

The validity of each function is tested on each of the machine ranges for which the Library is available. Only when an implementation satisfies our stringent accuracy requirements is it released. As a result you can rely on the proven correctness and reliability of the functions to give you the right answers.



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Why should I use the NAG Fortran Library?

Increased productivity

NAG C Fortran Library functions, written by experts in their field, are renowned for correctness, reliability and robustness making them the perfect choice to solve your problem.

Safeguard and future-proof your application/work

By using the NAG Library algorithms you cut key person dependency inherent if you choose to write your own code. The NAG Library is continually being updated and improved.

Detailed documentation

NAG's documentation is renowned for its detail. Included in each NAG Library function document is an example program giving users a template for adaptation to their own problems.

NAG's expert support service

By subscribing to NAG's dedicated in-house Customer Support Service not only will you receive product updates, but you can access, via the NAG Response Centre, NAG experts who will assist with your technical queries or difficulties.

Features	Benefits
Unrivalled numerical functionality – over 1,600 functions	**Save time by not writing your own algorithmic code**
Proven correctness and robustness	**Future proof accuracy of application and reduce maintenance time**
Highly flexible and easy to use from multiple languages and environments	**NAG software evolves to reflect your programming language and environment advances**
Thread safe routines	**Safely develop multi threaded applications**

Product availability

The NAG Fortran Library is available for: Linux, Microsoft Windows as a set of DLL (Dynamic Link Libraries) and Mac OS (and more). It is also callable from multiple software packages, programming languages and development environments.

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