

# NAG Library Chapter Contents

## F01 – Matrix Operations, Including Inversion

F01 Chapter Introduction

<b>Routine Name</b>	<b>Mark of Introduction</b>	<b>Purpose</b>
F01ABF	1	Inverse of real symmetric positive-definite matrix using iterative refinement
F01ADF	2	Inverse of real symmetric positive-definite matrix
F01BLF	5	Pseudo-inverse and rank of real $m$ by $n$ matrix ( $m \geq n$ )
F01BRF	7	$LU$ factorization of real sparse matrix
F01BSF	7	$LU$ factorization of real sparse matrix with known sparsity pattern
F01BUF	7	$ULDL^T U^T$ factorization of real symmetric positive-definite band matrix
F01BVF	7	Reduction to standard form, generalized real symmetric-definite banded eigenproblem
F01CKF	2	Matrix multiplication
F01CRF	7	Matrix transposition
F01CTF	14	Sum or difference of two real matrices, optional scaling and transposition
F01CWF	14	Sum or difference of two complex matrices, optional scaling and transposition
F01ECF	22	Real matrix exponential
F01LEF	11	$LU$ factorization of real tridiagonal matrix
F01LHF	13	$LU$ factorization of real almost block diagonal matrix
F01MCF	8	$LDL^T$ factorization of real symmetric positive-definite variable-bandwidth matrix
F01QGF	14	$RQ$ factorization of real $m$ by $n$ upper trapezoidal matrix ( $m \leq n$ )
F01QJF	14	$RQ$ factorization of real $m$ by $n$ matrix ( $m \leq n$ )
F01QKF	14	Operations with orthogonal matrices, form rows of $Q$ , after $RQ$ factorization by F01QJF
F01RGF	14	$RQ$ factorization of complex $m$ by $n$ upper trapezoidal matrix ( $m \leq n$ )
F01RJF	14	$RQ$ factorization of complex $m$ by $n$ matrix ( $m \leq n$ )
F01RKF	14	Operations with unitary matrices, form rows of $Q$ , after $RQ$ factorization by F01RJF
F01ZAF	14	Convert real matrix between packed triangular and square storage schemes
F01ZBF	14	Convert complex matrix between packed triangular and square storage schemes
F01ZCF	14	Convert real matrix between packed banded and rectangular storage schemes
F01ZDF	14	Convert complex matrix between packed banded and rectangular storage schemes

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