Tutorials and worked examples for simulation, curve fitting, statistical analysis, and plotting.
http://www.simfit.org.uk

The Cholesky factorization of a positive definite matrix is widely used in data analysis for evaluation of quadratic forms and other calculations involving covariance matrices.

From the main SIMFIT menu choose [Statistics] followed by [Numerical analysis], and then open the Cholesky factorization procedure. The default test file is `matrix.tf3` and analysis yields the following results.

The current matrix A

4.16	-3.12	0.561	-0.10
-3.12	5.03	-0.83	1.09
0.56	-0.83	0.76	0.34
-0.10	1.09	0.34	1.180

Lower triangular L where $A = LL^T$

2.0396078E+00			
-1.5297059E+00	1.6401219E+00		
2.7456259E-01	-2.4998141E-01	7.8874881E-01	
-4.9029034E-02	6.1885642E-01	6.4426613E-01	6.1606334E-01

Upper triangular U where $A = U^T U$

2.0396078E+00	-1.5297059E+00	2.7456259E-01	-4.9029034E-02
	1.6401219E+00	-2.4998141E-01	6.1885642E-01
		7.8874881E-01	6.4426613E-01
			6.1606334E-01

Note that an error message will be issued if the matrix supplied is not square, or positive definite to within a tolerance factor.

Also note that there are two conventions used to define the Cholesky factors for a matrix A, i.e.

$$\begin{aligned} A &= LL^T \\ &= U^T U. \end{aligned}$$

You can display or write to file the matrices A, L, or U.