TPG4155 APPLIED COMPUTING IN GEOSCIENCE AND PETROLEUM TECHNOLOGY
(http://www.ipt.ntnu.no/~kleppe/TPG4155**)**
Spring 2007

lectures*: Friday 0815-10*
exercises*: assistance in computer rooms will be agreed*

The purpose of this course is to provide students in geoscience and petroleum technology a better background for problem solving in their disciplines using computers and numerical methods. In the beginning of the cource focus will be on introduction to UNIX and FORTRAN, and thereafter a number of exercises will have to be solved usung FORTRAN. Lectures includes description of methods, programming and numerica methods. During the semester 4 written tests will be given that together with the exercises will form the base for the course grade (tests 75%, exercises 25%).

Lecturers/student assistants/support
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Text books
•Numerical Recipes, 2. ed., Press et al., Cambridge, 1996 – finnes på Internet
•Fortran 90/95 for Scientists and Engineers, 2. ed., S. J. Chapman, McGraw-Hill, 2004
•Notes, etc.

Relevant areas
•Interpolation
•Curve fitting
•Finding roots of equations
•Solution of systems of equations
•Matrix calculations
•Numerical integration
• Numerical solution of ordinary differential equations
•Numerical solution of partial differential equations
•Statistical Methods

Applications areas
•Drilling
•Well logging
•Geophysics/seismics
•Geology
•Production
•Reservoir

Programming language
FORTRAN

Computers
•PC rooms in 3. floor using emulators for UNIX and petrus.ipt.ntnu.no)