

APPLIED MATHEMATICS 491 "NUMERICAL ANALYSIS I"

Calendar Description: H(3-1T)

Interpolation and approximation, numerical integration, numerical methods for the solution of nonlinear equations, systems of linear equations and the eigenvalue problem.

Prerequisite: Mathematics 311, 381 or 349 and 353 or Applied Mathematics 309, and Computer Science 231 or 217; or consent of the Division.

Note: Not open to students with credit in Computer Science 491.

Syllabus

<u>Topics</u>	<u>Number of Hours</u>
Iterative solution of non-linear equation in one variable	9
Solution of linear systems: direct elimination, matrix factorization, iterative methods, matrix norms, convergence	16
Iterative solution of non-linear systems by fixed point iteration and Newton's method	6
The symmetric eigenvalue problem, Gershgorin's Theorem, the power method	5
TOTAL HOURS	36

Software for carrying out computational experiments was available on the University's main-frame computer through the provision of a "laboratory" equipped with terminals.

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