**CATALOG YEAR __2006-2007_____**
**(Please use separate form for each add/change)**

COLLEGE/SCHOOL :                    _____Arts and Sciences_____

Current Catalog Page(s) Affected          ___p. 301_____

**Course:**          Add: _____     Delete: _____
(check all that apply)     Change: X     Number ____ Title __X__ SCH _____
                                          Description __X__ Prerequisite __X__

If new, provide Course Prefix, Number, Title, SCH Value, Description, prerequisite, and lecture/lab hours if applicable. If in current catalog, copy and paste the text from the and indicate changes in red.

**MATH 4340** *Numerical Analysis I.* Three semester hours. (SP)
Error analysis, solutions of non-linear functions, systems of linear equations, eigenvalue problems, interpolation theory, numerical differentiation and integration, numerical methods for ordinary differential equations. Prerequisites: MATH 3330 and MATH 3310.

**Justification:** Change reflects the contents and requirements for this course.

**Program:**     Add: _____     Change: _____     Attach new/changed Program of Study description and 4-year plan. If in current catalog, copy and paste the text from the and indicate changes in red.

**Minor:** Add: _____Delete: _____ Change: _____     Attach new/changed minor.
If in current catalog, copy and paste the text from the and indicate changes in red.

**Faculty:**     Add: _____     Delete: _____     Change: _____     Attach new/changed faculty entry.
If in current catalog, copy and paste the text from the and indicate changes in red.

**College Introductory Pages:**     Add information: _____ Change information: _____
Attach new/changed information. If in current catalog, copy and paste the text from the and indicate changes in red.

| Approvals: | Signature | Date |
|---|---|---|
| Chair<br>Department Curriculum Committee | Eduardo Chappa | 10/28/2005 |
| Chair<br>Department | Chen-Han Sung, Ph. D. | 10/28/2005 |
| Chair<br>College Curriculum Committee | Neal McReynolds | |
| Dean | Dr. Nasser Momayezi - Dean | |

**MATH 4330** *Numerical Linear Algebra.* Three semester hours.
Numerical methods for problems of linear algebra, including the solution of large systems, eigenvalues and eigenvectors. Prerequisite: MATH 3310.

**MATH 4335** *Advanced Calculus.* Three semester hours. (FL)
A course in real analysis. It will include topology, continuity, differentiation, integration, sequences, series and power series. Prerequisite: MATH 2415.

**MATH 4340** *Numerical Analysis.* Three semester hours. (SP)
Iterative techniques, error analysis, root finding, interpolation, approximation, numerical integration, numerical solution of differential equations. Prerequisite: MATH 4335.

**MATH 4345** *Complex Variables.* Three semester hours. (SP)
This is a course in complex variables which will include analytic functions, power series, the theory of residues and conformal mappings. Prerequisite: MATH 4335 or permission of instructor. May be taken for graduate credit.

**MATH 4350** *Partial Differential Equations.* Three semester hours. (SP)
This is an introductory course in partial differential equations. It will include such topics as the following: derivation of equations of mathematical physics, Fourier series, separation of variables, Sturm-Liouiville systems, finite Fourier transforms. Prerequisite: MATH 3330.

**MATH 4355** *Selected Topics in Mathematics.* Three semester hours.
Topics selected from the fields of pure or applied mathematics. May be repeated when topic changes. Prerequisites: Senior standing and permission of instructor.

**MATH 4360** *General Topology.* Three semester hours. (FL)
Basic concepts of point-set topology including connectedness, compactness, etc. and metric spaces. Prerequisite: MATH 4335 or permission of instructor.

**MATH 4365** *Geometry of Curves and Surfaces.* Three semester hours. (FL/SS)
This course will present geometry of curves and surfaces in three dimensional Euclidean space. Topics include 1) From Curve Theory: Parametized Curves, Arc Length, Frenet-Serret Frame, Singularities, Theory of Contact, Curvature, Torsion, Intrinsic Equation of Curves, Global Properties of Curves; 2) From Surface Theory: Parametrized Surfaces, Tangent Plane and Normal Line, First and Second Fundamental Forms, Curvature of Surfaces. Prerequisite: MATH 2415, 3310.

**MATH 4385** *History of Mathematics.* Three semester hours. (FL)
Topics from arithmetic and computation, algebra, geometry, trigonometry, calculus, number theory, linear algebra, etc. from ancient recorded history to modern times intertwined with historical perspectives, biographies of several mathematicians from different cultures and times, their contributions, and that of their cultures, to mathematics and society. Prerequisite: Nine semester hours of advanced mathematics.

**MATH 4390** *Mathematics in the Middle and High Schools. Three* semester hours. (SP)
Selected topics from secondary school mathematics. Content, materials, and contemporary issues specific to teaching of mathematics at the secondary school level. Prerequisite: Completion of at least eighteen SCH of upper-lever requirement of mathematic courses.