



08-40

Minnesota State University, Mankato HOLD and CLEAR buttons only compatible with Acrobat V. 4 and 5
Curriculum Proposal

Please type or select the requested information. Print completed forms, add appropriate paper attachments, and route through MSU's curricular process for recommendations and decisions.

College: <input type="text" value="Science, Engineering and Technology"/>		(Check all that apply): <input checked="" type="checkbox"/> Undergraduate		Proposal # <input type="text" value="101"/>							
Department: <input type="text" value="Mathematics and Statistics"/>		<input checked="" type="checkbox"/> Graduate		Effective Date of Change:							
Program: <input type="text" value="Mathematics"/>		CIP #		Academic Year <input type="text" value="07-08"/>							
Type of Change: <input type="text" value="COURSE PROPOSALS"/>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Course Designator and Number</th> <th style="padding: 5px;">Number of Credits</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Math 470/570</td> <td style="padding: 5px;">4</td> </tr> <tr> <td style="padding: 5px;"> </td> <td style="padding: 5px;"> </td> </tr> </tbody> </table>		Course Designator and Number	Number of Credits	Math 470/570	4			(For Office Use Only)	
Course Designator and Number	Number of Credits										
Math 470/570	4										
Proposed: <input type="text" value="Change in Course—Other"/>		(if applicable)		Title Current: <input type="text" value="Numerical Analysis"/>							
Title Proposed:		24-Char. Abbrev:		Math 470/570							
24-Char. Abbrev:		(if applicable)		Math 470/570							

Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):
 See attached sheet to amend the prerequisites. Delete reference to "familiarity with a programming language" and "FORTRAN"

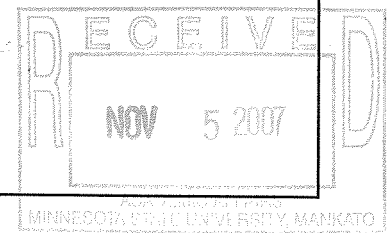
Rationale or Justification for change:
 Modern computer software allows more options for computer implementation. Familiarity with FORTRAN or C++ is no longer required for the course.

*****For General Education or Cultural Diversity Courses Only*****

<p style="text-align: center;">General Education Course:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">GE Category #</th> <th style="padding: 5px;">GE Category Name (Maximum of 3 Categories)</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px; text-align: center;">N/A</td> <td style="padding: 5px;"> </td> </tr> <tr> <td style="padding: 5px; text-align: center;">N/A</td> <td style="padding: 5px;"> </td> </tr> <tr> <td style="padding: 5px; text-align: center;">N/A</td> <td style="padding: 5px;"> </td> </tr> </tbody> </table> <p> <input type="checkbox"/> For Writing Intensive Courses, attach a description of the kind and quantity of writing. <input type="checkbox"/> For Upper Division Courses, include a description of the respects in which it is broad and general rather than narrow and specific, and so suitable as GE. </p> <p>Attach paper copies of the following:</p> <ol style="list-style-type: none"> Syllabus or course outline. Course's student learning outcomes associated with each GE competency or CD designation. List of strategies to be used to assess students' achievement of each GE competency or CD designation. 	GE Category #	GE Category Name (Maximum of 3 Categories)	N/A		N/A		N/A		<p style="text-align: center;">Cultural Diversity Course:</p> <p style="text-align: center;">(Please check one.)</p> <p> <input type="checkbox"/> Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.) </p> <p> <input type="checkbox"/> Related (At least 25% devoted to the above topics or to a global perspective on topics related to African American, Asian, Hispanic, and Native American inhabitants of the United States.) </p>
GE Category #	GE Category Name (Maximum of 3 Categories)								
N/A									
N/A									
N/A									

*****For New Courses*****

(Check all that apply): <input type="checkbox"/> Course is an elective. <input type="checkbox"/> Course is required for program <input type="checkbox"/> Pre- or Co-requisites: <input type="checkbox"/> Other courses are being changed or eliminated. (Explain.)	Instructional Type: <input type="text" value="Lecture"/> Grading Format: <input type="checkbox"/> Grade <input type="checkbox"/> P/N	Course will be offered: <input type="checkbox"/> Fall Semester <input type="checkbox"/> Spring Semester <input type="checkbox"/> Summer Session
<input type="checkbox"/> Course content or title is similar to courses in other departments. (Attach copy of letter of agreement with other program(s) contacted. Indicate the nature of the discussions and/or resolution of differences or potential conflicts.)		
Attach paper copies of the following: <ol style="list-style-type: none"> Syllabus or course outline. Course's student learning outcomes. A list of resources required to offer and support this course. A description of how teaching this course will affect department staffing. If 400/500 level course, an explanation of added expectations of graduate students. 		





Minnesota State University, Mankato
Curriculum Proposal

Signature Page

Department			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>Ernest Boyd</u>	<u>16 Oct 07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Department Chair	Date
Comments:			
College Curriculum Committee			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>[Signature]</u>	<u>10/30/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Committee Chair	Date
Comments:			
College Dean			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>[Signature]</u>	<u>11/2/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Dean	Date
Comments:			
General Education Subcommittee			
<input type="checkbox"/> Recommended	(Category/ies _____)		
<input type="checkbox"/> Not Recommended	(Category/ies _____)	General Education Subcommittee Chair	Date
Comments:			
Undergraduate Curriculum and Academic Policy Committee			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>[Signature]</u>	<u>12/12/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	UCAP Faculty Chair	Date
Comments:			
Faculty Association Graduate Committee			
<input type="checkbox"/> Recommended			
<input type="checkbox"/> Not Recommended		Faculty Association Graduate Chair	Date
Comments:			
Graduate Dean			
<input type="checkbox"/> Recommended			
<input type="checkbox"/> Not Recommended		Graduate Dean	Date
Comments:			
Academic Affairs Council			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>[Signature]</u>	<u>12/26/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Assistant Vice President	Date
Comments:			
Senior Vice President and Vice President for Academic Affairs			
<input checked="" type="checkbox"/> Approved	(Category/ies _____)	<u>[Signature]</u>	<u>12/20/07</u>
<input type="checkbox"/> Not Approved	(Category/ies _____)	Sr. Vice President / Vice Pres. Academic Affairs	Date
Comments:			

MATH 446 (4) Abstract Algebra II

A continuation of MATH 345. The course will include topics from groups, rings, and fields.

Pre: MATH 345 with "C" or better or consent

Spring

MATH 447 (3) Linear Algebra II

An in-depth study of linear operators and their related spaces, dimension, rank, matrix representation of linear operators, special matrices, determinants, eigenvectors and eigenvalues.

Pre: MATH 345 with "C" or better or consent

Fall

MATH 455 (4) Theory of Statistics I

A mathematical approach to statistics with derivation of theoretical results and of basic techniques used in applications. Includes probability, continuous probability distributions, multivariate distributions, functions of random variables, central limit theorem and statistical inference. Same as STAT 455.

Pre: MATH 223 with "C" or better or consent

Fall

MATH 456 (4) Theory of Statistics II

A mathematical approach to statistics with derivation of theoretical results and of basic techniques used in applications, including sufficient statistics, additional statistical inference, theory of statistical tests, inferences about normal models and nonparametric methods. Same as STAT 456

Pre: MATH 455 / STAT 455 with "C" or better or consent

MATH 470 (4) Numerical Analysis I

This course provides an introduction to techniques and analysis involved with solving mathematical problems using technology. Topics included are errors in computation, solutions of linear and nonlinear equations, numerical differentiation and integration, and interpolation.

Pre: MATH 122, MATH 247 with "C" or better or consent, and familiarity with a programming language

Spring

DELETE

MATH 471 (4) Numerical Analysis II

This course is a continuation of MATH 470. Topics included are the algebraic eigenvalue problem, leastsquares approximation, solutions of systems of nonlinear equations, numerical solutions of ordinary differential equations.

Pre: MATH 470 and MATH 223 with "C" or better or consent

MATH 480 (3) History of Mathematics

The development of selected topics from before the Hellenistic time period to the late twentieth century. Familiarity with the content of HIST 180W is beneficial.

Pre: MATH 345 with "C" or better or consent

Fall

MATH 483 (3) Advanced Viewpoint of 5-8 School Mathematics

Advanced viewpoint of mathematics content and learning theories, teaching strategies, reading strategies, assessments, and planning, teaching and reflecting on grades 5-8 mathematics. Field experiences in grades 5-8 mathematics classroom required.

Pre: MATH 290 with "C" or better or consent

Spring

MATH 484 (3) Technology in 5-12 School Mathematics

Numerical, verbal, symbolic and graphical representations of quantitative relationships, concatenations in written mathematics, problem solving, dynamic geometry, perspective drawing, parametric equations, geometric probability, transition matrices, statistics and calculus using technology.

Pre: MATH 290 with "C" or better or consent

Fall

MATH 556 (4) Theory of Statistics II

A mathematical approach to statistics with derivation of theoretical results and of basic techniques used in applications, including sufficient statistics, additional statistical inference, theory of statistical tests, inferences about normal models, and non-parametric methods. Same as STAT 556.

Prerequisite: MATH/STAT 555

MATH 570 (4) Numerical Analysis I

This course provides an introduction to techniques and analysis involved with solving mathematical problems using technology. Topics included are errors in computation, solutions of linear and nonlinear equations, numerical differentiation and integration, and interpolation.

Prerequisite: MATH 122, 247, and FORTRAN

DELETE

MATH 571 (4) Numerical Analysis II

This course is a continuation of MATH 470. Topics included are the algebraic eigenvalue problem, least-squares approximation, solutions of systems of nonlinear equations, and numerical solutions of ordinary differential equations.

Prerequisite: MATH 470 and 223

MATH 580 (3) History of Mathematics

The development of selected topics from before the Hellenistic time period to the late twentieth century. Familiarity with the content of HIST 180 is beneficial.

Prerequisite: MATH 345

MATH 583 (3) Viewpoint of 5-8 School Mathematics

MATH 584 (3) Technology in 5-12 School Mathematics

This course is designed to inform secondary mathematics teachers about effective utilization of technology in the mathematics curriculum.

Prerequisite: MATH 345 and CI 447

MATH 588 (1-3) Seminar

A course of study in which a group of students study a topic by examining results through reports and discussions. May be repeated for credit on each new topic.

MATH 590 (1-4) Workshop

A short course devoted to a specific mathematical topic. May be repeated for credit on each new topic.

MATH 591 (1-4) In-Service

A course designed to upgrade the qualifications of persons on-the-job. May be repeated on each new topic.

MATH 595 (1-4) Selected Topics

A course in an area of mathematics not regularly offered. May be repeated on each new topic.

MATH 596 (3) Mathematical Logic

Propositional logic, first and second order logic, completeness, consistency, models of theories, and Godel's Incompleteness theorem.

Prerequisite: MATH 345 and PHIL 411

MATH 598 (1-12) Internship

Provides a student the opportunity to gain expertise and experience in a special field under the supervision of a qualified person.

MATH 605 (3) Graphs and Algorithms

Mathematical concepts of graph theory applied to problems that have algorithmic solutions.

Prerequisite: MATH 417, 375, and 447

MATH 606 (3) Topics in Discrete Mathematics

Can be used for any graduate level discrete mathematics course not offered as a regular course. Distinct offerings may be repeated for credit.

Prerequisite: MATH 375 and 447

MATH 608 (1-4) Seminar in Elementary Mathematics

Provides an opportunity for a group of elementary teachers to study a mutual problem in mathematics.

MATH 611 (3) Real Analysis

Measure theory, integration, metric spaces, and Banach spaces.

Prerequisite: MATH 417

Mathematics and Statistics Department
Meeting Minutes
October 12, 2007

Present: Boyd, Guy, Harper, Haskins, Hermann, Kim, Kitsul, W. Lee,
Pearson, Rahman, Regas, Singer, Stehr, Tsao,, Waters, Wiest, Yin, Zuiker.

1. Minutes of the August 23, 2007 meeting were approved.
2. Singer moved and Zuiker seconded the following Math 130 motion. Motion passed

Motion: Whereas the College of Business desires to replace its requirement of Math 112 College Algebra (4 credits) by a new course called Finite Mathematics and Introductory Calculus (4 credits) designed in cooperation with the Department of Mathematics and Statistics, we move to change the title and number of credits of Math 130 from Finite Mathematics and Its Applications (3 credits) to Finite Mathematics and Introductory Calculus (4 credits) and submit a course redesign application to the CSET Curriculum Committee.

3. Singer moved and Waters seconded the following Math 470 motion. Motion passed

Motion: Whereas few students who enroll in Math 470 Numerical Analysis I (4 credits) have a programming background, and the course is taught without requiring a programming background, we move to change the description of Math 470 to eliminate the prerequisite for a formal programming language, and submit a course description change application to the CSET Curriculum Committee.

Proposed Bulletin Description

This course provides an introduction to techniques and analysis involved with solving mathematical problems using technology. Topics included are errors in computation, solutions of linear and nonlinear equations, numerical differentiation and integration, and interpolation. Pre: Math 122 and Math 247.

4. Singer moved and Herman seconded the following motion changing the prerequisite for Math113 from Math 098 to Math 112. Motion passed.

Motion: Where are currently advising students to take Math 112 before taking Math 113, and whereas the Curriculum Committee feels that Math 112 is better preparation for Math 113 than Math 098, we move to change the wording of the prerequisites for Math 113 Trigonometry (4 credits) from "or successful completion of Math 098" to "or Math 112 with "C" or better."

5. Singer moved and Zuiker seconded the motion regarding Math 181.

6. Zuiker moved and Singer seconded an amendment to reword the motion. Amendment passed.
7. The following motion passed.

Motion: Whereas the Curriculum Committee was charged with developing a calculus course that will meet the needs of students seeking middle school licensure, we move that the Department of Mathematics and Statistics request that the registrar's office place a note in the Fall course schedule indicating that the 10 am section of Math 181 (3 credits) will admit Elementary Education Majors only.

8. Singer moved and Zuiker seconded the following motion to withdraw Math 184. Motion passed.

Motion: Whereas Math 184 Mathematical Reasoning (3 credits) is no longer offered, we move that it be withdrawn, and an application for withdrawal be submitted to the CSET Curriculum Committee.