

College of Liberal Arts and Sciences

Committee on Curricula and Courses

Minutes of the meeting of September 13, 2005

Approved October 11, 2005

1. PRELIMINARIES

The meeting was called to order by the chair, Professor John J. Manning (English) at 3:30 PM in Room 162 of the Thomas Dodd Research Center on the Storrs campus. Present were committee members Jocelyn Linnekin (ANTH), Robert Michel (CHEM), Anne Hiskes, Associate Dean (CLAS Dean's Office), Ross Buck (COMS), Margaret Rubega (EEB), Hans Turley (ENGL), Alex Vias (GEOG), Nancy Shoemaker (HIST), Wayne Worcester (JOUR), Jon Gajewski (LING), Roger Travis (MCL), Gerald Leibowitz (MATH), Kenneth Noll (MCB), Paul Bloomfield (PHIL), George Rawitscher (PHYS), Robert Gallo (PNB), Jeremy Pressman (POLS),

Robert Henning (PSYC), Robert Bifulco (PUBL), Arnold Dashefsky (SOCI), and Marita McComiskey (WS), as well as guest Jeffrey Tollefson (MATH).

- a. Gerald Leibowitz was appointed secretary for this meeting.
- b. The chair gave a brief review of the responsibilities of the committee, relating to both courses and curricula.
- c. Announcement: In expectation of a large number of submissions intended for inclusion in the next printed catalog, the chair has scheduled committee meetings for three Tuesdays in October, on 10/11, 10/18, and 10/25.
- d. Approvals by chair on behalf of the committee during the interval: An editorial change for ENGL 165, Introduction to American Studies.

Approved catalog copy:

ENGL 165. Introduction to American Studies (Also offered as INTD 165). First semester. Three credits. Not open to students who have passed INTD 276.

What is an American? A multi-disciplinary inquiry into the diversity of American societies and cultures.

2. OLD BUSINESS

i. **B.S. Degree.** The subcommittee to consider a change in requirements for the B.S. degree distributed a report of its deliberations and E-mail correspondence. Robert Michel gave a synopsis of the discussion in the subcommittee and of various earlier proposals. There is no consensus so far, and today's discussion in the CCC indicates that various parties are still far apart in their thinking on the issue. The subcommittee, consisting of Henning (replacing David Miller), Leibowitz, Michel (chair), Noll (replacing Thomas Terry), Rawitscher, and Skoog will think some more about the matter.

ii. **Online courses.** A. Skoog had earlier raised questions about whether online courses needed specific approval, and if so by whom? There is no obvious policy. At this meeting there was further discussion but no resolution. More facts need to be gathered and a recommendation be made to the CCC. A subcommittee consisting of Bloomfield, A. Hiskes, Linnekin, Michel, Skoog, and Vias was appointed and asked to report its conclusions at the November meeting of this committee.

3. NEW BUSINESS

3a. Issues of concern to CLAS administration

A. A. The moratorium on the third W-course. A proposal to extend the current moratorium for an additional year was discussed, along with the exploration of ideas for improving writing in the College being considered by a task force of this committee. After acceptance of an amendment, the following **motion** (m. Hiskes, s. Turley) was **approved**:

The W- moratorium currently in effect shall be extended by a year, through August 2007, and the W-task force will continue its review of existing W-courses, writing assigned in non-W-courses, and alternatives to a standard third W-course for writing instruction and/or assessment and will report to the Committee on Curricula and Courses no later than March 14, 2006.

B. B. Effects of course renumbering on the degree requirements of the College. Since two of the provisions of the CLAS bachelor's degree requirements refer to courses 'numbered 200 or above,' and because the concept of courses 'open to sophomores or higher' will no longer exist, beginning with the 2007-2008 catalog, Hiskes raised an informal motion to change "numbered 200 or above" to "numbered 2500 or above" in those catalog statements, with the understanding that departments of instruction would use 2000-2499 for sophomore courses

not applicable to the credits for the degree and 2500-2999 for those that would be applicable. These ideas generated discussion but no consensus, and the committee chair was charged with distributing a proposal on this set of issues to the members of the committee to share with their departmental curriculum committees for consideration.

C. C. Scheduling of cross-listed courses - Courtesy and Conflict. There have been instances where a department or campus director, etc., has decided to offer a version of a course that bears two or more cross-listed numbers without consultation with the other departments or programs that share ownership of the course and sometimes using instructors whom the other department finds unacceptable. How to deal with the responsibilities and conflicts was discussed at this meeting, without resolution.

3b. Departmental Course Proposals (2005-110 - 2005-117, 2005-119):

Proposals 2005-110 -- To add honors courses MATH 135Q, 136Q, 230Q;

2005-111 to add honors courses MATH 243Q, 244Q, 245Q, 246Q;

2005-112 to add MATH 261, 265, 267;

2005-112b to change MATH 301, 307, 315;

2005-113 to drop enhanced calculus courses MATH 120Q, 121Q, 220Q;

2005-114 to change the catalog copy for MATH 106Q, 107Q, 112Q, 113Q, 114Q, 115Q/QC, 116Q/QC, 200, 204, 210Q, 211Q, 215, 216, 223Q, 224, 225, 227Q, 231, 235, 237, 242W, 247Q-248Q, 250, 252, 255, 258, 272, 273-274, 279, 281, 283, 285 in view of the above;

2005-115 to change the Mathematics Major accordingly;

2005-116 to change the Mathematics Minor accordingly; and

2005-117 to change title and restrictions for MATH 221Q

were considered as a package and were **approved**. Since prerequisites and recommended preparations for several courses offered by the Physics Department refer to the enhanced calculus courses that are being dropped, the Mathematics Department will provide to Physics and other interested departments a clear chart of the relationships between the old and new courses so that they have a clear understanding of the changes they need to make in catalog copy for the courses with such references.

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2005-110. 2005-110. Add new courses **MATH 135Q, 136Q, 230Q**

Approved catalog copy:

135Q. Honors Calculus I

First semester. Four credits. Prerequisite: Passing score on the Calculus Readiness Survey. Students cannot receive credit for MATH 135 and either MATH 113, 115, or 120. May be used in place of MATH 115 to fulfill any requirement satisfied by MATH 115.

(Honors Course) The subject matter of MATH 115 in greater depth, with emphasis on the underlying mathematical concepts.

136Q. Honors Calculus II

Both semesters. Four credits. Prerequisite: MATH 135 or advanced placement credit for calculus (a score of 4 or 5 on the calculus AB examination or a score of 3 on the Calculus BC examination) or consent of instructor.

Students cannot receive credit for MATH 136 and either MATH 114, 116, or 121. May be used in place of MATH 116 to fulfill any requirement satisfied by MATH 116.

(Honors Course) The subject matter of MATH 116 in greater depth, with emphasis on the underlying mathematical concepts.

230Q. Honors Multivariable Calculus

Both semesters. Four credits. Prerequisite: MATH 136 or advanced placement credit for one year of calculus (a score of 4 or 5 on the Calculus BC examination) or consent of instructor. Open to sophomores or higher. Not open to students who have passed MATH 210 or 245. May be used in place of MATH 210 to fulfill any requirement satisfied by MATH 210.

(Honors Course) The subject matter of MATH 210 in greater depth, with emphasis on the underlying mathematical concepts

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2005-111. Add New Courses **Math 243Q, 244Q, 245Q, 246Q**

Approved catalog copy:

MATH 243Q-244Q. Advanced Calculus I, II

Both semesters. 4 credits each semester. May be taken for honors credit but open to any qualified student. Open to sophomores or higher. Prerequisite: A year of calculus (that may include calculus taken in high school) or consent of instructor. A rigorous treatment of the mathematics underlying the main results of one-variable calculus. Intended for students with strong interest and ability in mathematics who are already familiar with the computational aspects of basic calculus.

MATH 243Q may be used in place of MATH 115 or 135 to fulfill any requirement satisfied by MATH 115 or 135. MATH 244Q may be used in place of MATH 116 or 136 to fulfill any requirement satisfied by MATH 116 or 136.

MATH 245Q-246Q. Advanced Calculus III, IV

Both semesters. 4 credits each semester. May be taken for honors credit but open to any qualified student. Open to sophomores or higher. Prerequisite: Math 244Q or consent of instructor.

A rigorous treatment of more advanced topics, including vector spaces and their application to multivariable calculus and first-order, second-order and systems of differential equations.

MATH 245 may be used in place of MATH 210 to fulfill any requirement satisfied by MATH 210. MATH 246 may be used in place of MATH 211 to fulfill any requirement satisfied by MATH 211.

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2005-112. Proposal to Add new courses MATH 261, 265, 267

Approved catalog copy:

MATH 261. Introduction to Modern Analysis

(Also offered as MATH 301.) First semester. Three credits. Prerequisite: Consent of instructor. Not open for credit to students who have passed MATH 301.

Metric spaces, sequences and series, continuity, differentiation, the Riemann-Stieltjes integral, functions of several variables.

MATH 265. Abstract Algebra I

(Also offered as MATH 315.) First semester. Three credits. Prerequisite: Consent of instructor.

Not open for credit to students who have passed MATH 315.

A study of the fundamental concepts of modern algebra: groups, rings, fields. Also selected topics in linear algebra.

MATH 267. Introduction to Geometry and Topology

(Also offered as MATH 307.) First semester. Three credits. Prerequisite: Consent of instructor.

Not open for credit to students who have passed MATH 307.

Topological spaces, connectedness, compactness, separation axioms, Tychonoff theorem, compact-open topology, fundamental group, covering spaces, simplicial complexes, differentiable manifolds, homology theory and the De Rham theory, intrinsic Riemannian geometry of surfaces.

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2005-112b. Alter corresponding restrictions to **Math 301, 307, 315**

Approved catalog copy:

MATH 301. Introduction to Modern Analysis

3 credits. Lecture. Not open for credit to students who have passed MATH 261.

Metric spaces, sequences and series, continuity, differentiation, the Riemann-Stieltjes integral, functions of several variables.

MATH 315. Abstract Algebra I

3 credits. Lecture. Not open for credit to students who have passed MATH 265.

A study of the fundamental concepts of modern algebra: groups, rings, fields. Also selected topics in linear algebra.

MATH 307. Introduction to Geometry and Topology

3 credits. Lecture: Prerequisite: MATH 301, which may be taken concurrently. Not open for credit to students who have passed MATH 267.

Topological spaces, connectedness, compactness, separation axioms, Tychonoff theorem, compact-open topology, fundamental group, covering spaces, simplicial complexes, differentiable manifolds, homology theory and the De Rham theory, intrinsic Riemannian geometry of surfaces.

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2005-113. 2005-113. Drop [Existing] Math 120Q, 121Q, 220Q

Approved.

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2005-114. Change Existing Math Courses 106Q, 107Q, 112Q, 113Q, 114Q, 115Q/QC, 116Q/QC, 200, 204, 210Q, 211Q, 215, 216, 223Q, 224, 225, 227Q, 231, 235, 237, 242W, 247Q-248Q, 250, 252,255, 258, 272, 273-274, 279, 281, 283, 285. (Changes indicated in red.)

Approved catalog copy:

106Q. Calculus for Business and Economics

Either semester. Three credits. (One credit for students who have passed MATH 113, 115, 120, or 135.) Recommended preparation: MATH 101 or the equivalent and MATH 105. Not open for credit to students who have passed MATH 118.

Derivatives and integrals of algebraic, exponential and logarithmic functions. Functions of several variables. Applications.

107Q. Elementary Mathematical Modeling

Either semester. Three credits. Recommended preparation: MATH 101 or the equivalent. Not open to students who have passed any mathematics course other than MATH 101, 102, 103, 105, or 108. This course and MATH 109 cannot both be taken for credit. This course should not be considered as adequate preparation for MATH 106, 112, 115, 120, or 135.

Use of algebraic and trigonometric functions with technology to analyze quantitative relationships and illustrate the role of mathematics in modern life; graphical numerical and symbolic methods. Most sections require a graphing calculator; some require work with a computer spreadsheet.

112Q. Introductory Calculus 1

Either semester. Four credits. Four class periods. Recommended preparation: MATH 101 or the equivalent. Students cannot receive credit for MATH 112 and any of MATH 115, 120, or 135. Students who have not passed the Calculus Readiness Test take this course rather than MATH 115 or 120.

Limits, derivatives, and extreme values of algebraic functions, with supporting algebraic topics.

113Q. Introductory Calculus 2

Either semester. Four credits. Four class periods. Prerequisite: MATH 112. Recommended preparation: A grade of C- or better in MATH 112. Students cannot receive credit for MATH 113 and any of MATH 115, 120, or 135. May be used in place of MATH 115 or 120 to fulfill any requirement satisfied by MATH 115 or 120.

Limits, derivatives, and extreme values of trigonometric functions, with supporting trigonometric topics; anti-derivatives of algebraic and trigonometric functions; the definite integral and applications.

114Q. Introductory Calculus 3

Either semester. Four credits. Four class periods. Prerequisite: MATH 113. Recommended preparation: A grade of C- or better in MATH 113. Note: MATH 115 is not adequate preparation for MATH 114. Not open for credit to students who have passed MATH 116, 121, or 136.

The transcendental functions, formal integration, polar coordinates, infinite sequences and series, lines and planes in three dimensions, vector algebra.

115Q or QC. Calculus I

Either semester. Four credits. Four class periods. Prerequisite: Passing score on the Calculus Readiness Test. Students cannot receive credit for MATH 115 and any of MATH 112, 113, 120, or 135. Suitable for students with some prior calculus experience. May be used in place of MATH 112, 120, or 135 to fulfill any requirement satisfied by MATH 112, 120, or 135.

Limits, continuity, differentiation, antidifferentiation, definite integrals, with applications to the physical and engineering sciences. Sections with QC credit integrate computer-laboratory activity.

116Q or QC. Calculus II

Either semester. Four credits. Four class periods. Prerequisite: MATH 113, 115, 120, or 135, or advanced placement credit for calculus (a score of 4 or 5 on the Calculus AB exam or a score of 3 on the Calculus BC exam). Recommended preparation: A grade of C- or better in MATH 113 and 115. Not open to students who have passed MATH 114, 121, or 136. Substitutes for MATH 114 or 121 as a requirement.

Transcendental functions, formal integration, polar coordinates, infinite sequences and series, vector algebra and geometry, with applications to the physical sciences and engineering. Sections with QC credit integrate computer-laboratory activity.

MATH 200. Undergraduate Seminar I.

Either Semester. One credit. Prerequisite: Either MATH 210, 220, 230, or 245; and either MATH 211, 221 or 246.

The student will attend 6-8 seminars per semester, and choose one mathematical topic to investigate in detail. The student will write a well-revised, comprehensive paper on this topic, including a literature review, description of technical details, and a summary and discussion.

204. Introduction to Mathematical Modeling

Either semester. Three credits. Prerequisite: MATH 221 **or 246**; or MATH 211 and 227. Knowledge of a programming language is strongly recommended. Not open for credit to students who have passed MATH 304 or 305, CHEM 305, or PHYS 305.

Construction of mathematical models in the social, physical, life and management sciences. Linear programming, simplex algorithm, duality. Graphical and probabilistic modeling. Stochastic processes, Markov chains and matrices. Basic differential equations and modeling.

210Q. Multivariable Calculus

Either semester. Four credits. Four class periods. Prerequisite: MATH 116, 121, **or 136** or a score of 4 or 5 on the Advanced Placement Calculus BC exam. Recommended preparation: A grade of C- or better in MATH 116. Not open for credit to students who have passed MATH 220 **or 230 or 245**. Open to sophomores or higher. Two- and three-dimensional vector algebra, calculus of functions of several variables, vector differential calculus, line and surface integrals.

211Q. Elementary Differential Equations

Either semester. Three credits. Prerequisite: MATH 116, 121, **136 or 244**. Recommended preparation: A grade of C- or better in MATH 116; and MATH 210, 220, **or 230**. Not open for credit to students who have passed MATH 221 **or 246**. Open to sophomores or higher.

Introduction to ordinary differential equations and their applications, linear differential equations, systems of first order linear equations, numerical methods.

215. Abstract Linear Algebra

Either semester. Alternate years. Three credits.

Prerequisite: MATH 227 **or 246**; and MATH 213 or 214.

Vector spaces and linear transformations over fields.

216. Abstract Algebra I

Either semester. Three credits. Prerequisite: MATH 213 or 214 or 244.

Recommended preparation: Math 215 or 227 or 246.

The fundamental topics of modern algebra including elementary number theory, groups, rings, polynomials and fields.

223Q. Geometry

Either semester. Three credits. Prerequisite: MATH 113, 115, 120, 135 or 244. MATH 113 may be taken concurrently. Open to sophomores or higher.

Deductive reasoning and the axiomatic method, Euclidean geometry, parallelism, hyperbolic and other non-Euclidean geometries, geometric transformations.

224. Projective Geometry

Either semester. Three credits. Prerequisite: MATH 213Q or 244.

Finite and infinite geometries as logical systems based on axioms. Synthetic and analytic projective geometry.

225. Differential Geometry

Either semester, alternate years. Three credits. Prerequisite: Either (i) MATH 210 or 230, and 211, and MATH 213, 214 or 244; or (ii) Math 246.

The in-depth study of curves and surfaces in space.

227Q. Applied Linear Algebra

Either semester. Three credits. Prerequisite: MATH 116, 121, 136 or 244. Recommended preparation: A grade of C- or better in MATH 116. Not open for credit to students who have passed MATH 215 or 246. Open to sophomores or higher.

Systems of equations, matrices, determinants, linear transformations on vector spaces, characteristic values and vectors, from a computational point of view. The course is an introduction to the techniques of linear algebra with elementary applications.

231. Probability

Either semester. Three credits. Prerequisite: MATH 210, 220, 230 or 245 which may be taken concurrently with the consent of the instructor.

Introduction to the theory of probability. Discussion of some of the probability problems encountered in scientific and business fields

235. Introduction to Mathematical Logic

Either semester, alternate years. Three credits. Prerequisite: MATH 213, 214, or 244 or CSE 207. PHIL 211 is recommended.

Formalization of mathematical theories, elementary model theory with applications to algebra, number theory, and non-standard analysis. Additional topics: Elementary recursion theory and axiomatic set theory. Emphasis on the applications of logic to mathematics rather than the philosophical foundations of logic.

237. Theory of Computability

Either semester, alternate years. Three credits. Prerequisite: MATH 213,214, 244 or CSE 254.

Finite automata and regular languages, pushdown automata and context-free languages and grammars. Turing machines, recursively enumerable sets and grammars, Church's thesis, the halting problem, and other undecidable problems. Computational complexity and NP-completeness.

242W. History of Mathematics

Either semester, alternate years. Three credits. Prerequisite: **Either (i) MATH 210 or 230**, and 211, or **(ii) 221 or 246**; **and ENGL 105 or 110 or 111 or 250**. This course may not be counted in any of the major groups described in the Mathematics Departmental listing.

A historical study of the growth of the various fields of mathematics.

247Q-248Q. Fundamentals of Algebra and Geometry

Either semester. Three credits each semester. Prerequisite: PSYC 132 and three credits of Mathematics other than MATH 101. Not open for credit to students who have passed any of MATH 210, 211, 220, **230, or 245**. This course may not be counted in any of the major groups described in the Mathematics Departmental listing.

The development of the number system with applications to elementary number theory and analytic geometry. This course is recommended for students in elementary education.

250. Elements of Topology

Either semester, alternate years. Three credits. Prerequisite: MATH 213, 214 or 244.

Metric spaces, topological spaces and functions, topological properties, surfaces, elementary topics in geometric topology.

252. Introduction to Complex Variables

(Also offered as MATH 352.) Either semester. Three credits. Prerequisite: MATH 210 and 211, or 221 or 246. MATH 252 not open for credit to students who have passed MATH 352.

Functions of a complex variable, integration in the complex plane, conformal mappings.

255. Principles of Computer Graphics

Either semester. Three credits. Prerequisite: CSE 111 or 130C; MATH 227, 215 **or 246**; MATH 210; and consent of instructor. Not open for credit to students who have passed CSE 275.

Representation of two- and three-dimensional data, internal representation of data structures, transformations, mapping of functions to graphics screen, graphics hardware. Programming projects assigned.

258. Introduction to Number Theory

Either semester, alternate years. Three credits. Prerequisite: MATH 213, 214 or 244.

Congruences, unique factorization, primitive roots, numerical functions, quadratic reciprocity and other selected topics, with emphasis on problem solving.

272. Differential Equations for Applications

Either semester. Three credits. Prerequisite: MATH 210 and 211, or 221 or 246. Not open for credit to students who have passed MATH 279.

Series solutions of differential equations, Bessel functions, Fourier series, partial differential equations and boundary value problems, nonlinear differential equations.

273-274. Analysis

Either semester. Three credits each semester. Prerequisite: MATH 213, 214 or 244; and 211, 221 or 246.

Introduction to the theory of functions of one and several real variables.

279. Introduction to Field Theory

Either semester. Three credits. Prerequisite: **Either (i) MATH 210 or 230, and 211 or 221, or (ii) Math 246.** Not open for credit to students who have passed MATH 272.

Vector analysis in rectangular, circular-cylindrical and spherical coordinates, postulational derivation of the partial differential equations of classical physics, Fourier series, Bessel and Legendre functions, solutions of Laplace, Poisson, diffusion and scalar and vector wave equations.

281. Numerical Analysis I

Either semester. Three credits. Prerequisite: Either (i) MATH 210 or 230, 211, and either 215 or 227 or (ii) Math 246; and knowledge of at least one programming language.

Analysis of numerical methods associated with linear systems, eigenvalues, inverses of matrices, zeros of non-linear functions and polynomials. Roundoff error and computational speed.

5. Proposed Catalog Copy:

283. Calculus and Probability Problems

Either semester. One or two credits. Hours by arrangement. Prerequisite: MATH 210, 230 or 245; and Math 231.

Problems in calculus and probability designed to help students prepare for the first actuarial examination.

285. Financial Mathematics I

(Also offered as MATH 365.) Either semester. Three credits. Prerequisite: MATH 114, 116, 121, 136 or 244.

The mathematics of measurement of interest, accumulation and discount, present value, annuities, loans, bonds, and other securities.

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2005-115 Proposal to Change the Mathematics Major

Approved catalog copy

[Note: The heading **Mathematics** and the three introductory paragraphs of the statement in the catalog remain unchanged (page 61 of 2005-06 Undergraduate Catalog). The paragraphs laying out the requirements for the various concentrations are replaced by the following paragraphs.]

Bachelor of Science in Mathematics: The requirements for the B.S. in Mathematics are (1) either (i) Math 210 (or 230), 211, 213 (or 243-244), 227 or (ii) Math 213, 245-246 or (iii) Math 243-244-245-246; (2) Math 216 (or 265), 273 (or 261), 274; (3) At least 6 additional credits from any of the following courses: MATH 204, 215, 217, 223, 224, 225, 231, 232, 235, 237, 250 (or 267), 252, 255, 258, 272, 277, 278, 281, 282, 286, and approved sections of 297 and 298; (4) At least 3 additional credits from any of the following courses: MATH 215, 217, 225, 250 (or 267), and 258. In addition, at least 12 credits at the 200 level in approved related areas are required.

Bachelor of Arts in Mathematics: The requirements for the B.A. in Mathematics are 27 credits of 200-level course work in Mathematics and 12 credits of course work in approved related areas. The required courses are (1) either (i) Math 210 (or 230), 211, 213 (or 243-244), 227 or (ii) Math 213, 245-246 or (iii) Math 243-244-245-246; (2) Math 216 (or 265), 273 (or 261); (3) At least 3 additional credits from any of the following courses: MATH 215, 217, 225, 250 (or 267), and 258. The remaining credits may come from any 200-level Mathematics courses, except MATH 242W, 247 and 248.

Bachelor of Science in Applied Mathematical Sciences: The requirements for the B.S. in Applied Mathematical Sciences are (1) either (i) Math 210 (or 230), 211, 213 (or 243-244), 227 or (ii) Math 213, 245-246 or (iii) Math 243-244-245-246; (2) Math 272, 273 (or 261), 281, and 282; (3) Two courses to be selected from MATH 204, 221, 231, 232, 237, 252, 255, 274, 277, 278, and approved sections of 297 and 298; (4) At least 3 additional credits from MATH 215 (or 265), 216, 217, 223, 224, 231, 235, 250 (or 267), 258, 286, and approved sections of 297 and 298. In addition, at least 12 credits at the 200 level in approved related areas are required.

Bachelor of Arts in Applied Mathematical Sciences: The requirements for the B.A. in Applied Mathematical Sciences are 27 credits of 200's level course work in Mathematics and at least 12 credits in approved related areas. The required courses for the degree are MATH 210 (or 230 or 245), 211 (or 221 or 246), 227 (or 245-246), 272, 281, and 282. The remainder of the 27 credits of Mathematics must be chosen from MATH 204, 213 or 214, 215 (or 265), 231, 232, 237, 252, 255, 273 (or 261), 277 and 278.

Bachelor of Science or Arts in Mathematics-Statistics: The requirements for the B.S. or B.A. in Mathematics-Statistics degree are 36 credits at the 200's level in Mathematics and Statistics (in addition to MATH 210 or 230), with at least 12 credits in each department. The required courses for the Mathematics-Statistics major are MATH 215, 227 or (245 and 246); 211 (or 246); and Statistics 230 and 231.

Bachelor of Science or Arts in Mathematics-Actuarial Science: The requirements for the B.S. or B.A. degree in Mathematics-Actuarial Science are 36 credits at the 200 level in Mathematics, Statistics, Business, and related areas (in addition to **MATH 210 or 230 or 245**). The required courses are **MATH 227 (or 246), 231, 232 (or STAT 235), 285, 286, 287-288, STAT 230-231, and FNCE 221 or 225**. Students should include **ECON 111 and 112**, a Computer Science course, and **ACCT 131 and 200** in their program of study as early as possible. Admittance to this program is available only to students who meet at least one of the following requirements:

- a total grade point average of 2.75 or higher;
- a total grade point average of 3.0 or higher in Mathematics;
- a passing score on one or more Actuarial examinations;
- acceptance by the Mathematics Department's Actuarial Science Committee.

To remain in the Actuarial Science Major, students are expected to maintain a total grade point average of 2.75 or higher.

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2005-116. 2005-116. Proposal to Change the Mathematics Minor

Approved catalog copy

Mathematics

The requirements for this minor are 15-18 credits of Mathematics, following one of these tracks:

Either

1. **MATH 210 (or 230 or 245), 211 (or 221 or 246), 227 (or 215 or 246), and two additional courses from the following: MATH 204, 216, 223, 225, 231, 235, 250 (or 267), 252, 258, 273 (or 261), 281, 286 or certain sections of 297, 298, and 299 approved by the department head.**

or

2. **Math 243, 244, 245 and 246.**

The minor is offered by the Mathematics Department.

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2005-117 Proposal to Change MATH 221Q

Approved catalog copy

221Q. Honors Differential Equations

Either semester. Three credits. Prerequisite: MATH 136 or instructor consent Open to sophomores or higher. Not open to students who have passed MATH 211 or 246. MATH 221 satisfies any requirement met by MATH 211, and provides superior preparation for prospective mathematics, science, and engineering majors.

(Honors Course) The subject matter of MATH 211 in greater depth, with emphasis on the underlying mathematical concepts.

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2005-119 It was determined that the Committee had agreed earlier to recertify the W-skill designation of GEOL 297W. ??? will inform the W-subcommittee of the GEOC.

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4. ADJOURNMENT. Action on the remaining course proposals (2005-118 and 2005-120 through -125) on the agenda was postponed until the next meeting of the Committee on October 11, 2005. The meeting ended at 5:30 PM.

Respectfully submitted,

Gerald M. Leibowitz