

- KSPE 7060 Exercise Electrocardiography** 3-0-3
Prerequisite: BIOL 2652. A basic understanding of the 12-lead electrocardiogram as it relates to graded exercise testing, training, and functional evaluation. The course is designed particularly to assist the clinical exercise physiologist in developing the skills required for quickly identifying electrocardiographic patterns at rest and during exercise.
- KSPE 7070 Sports Nutrition** 3-0-3
Prerequisite: KSPE 3200 or permission of instructor. Emphasizes the application of nutritional concepts to sport and physical activity. Included will be information relative to dietary modifications for optimal athletic performance.
- KSPE 7080 Sport-Related Illnesses and Conditions** 3-0-3
 Designed to provide an in-depth investigation and study of sport-related illnesses and conditions. The course will also study proper techniques and methodologies of assessing and managing these illnesses and conditions.
- KSPE 7100 Exercise Cardiovascular Physiology** 3-0-3
Prerequisite: KSPE 3420. A concentrated study in exercise physiology of the healthy and diseased heart. Emphasis is placed on normal versus abnormal conditions and their effect on exercise testing and training and myocardial adaptations under conditions of acute and chronic exercise.
- KSPE 7120 Physical Education Pedagogy** 3-0-3
 Provides the student with opportunities to research and apply a variety of teaching models and teaching methodologies in addition to related instructional practices associated with physical education.
- KSPE 7130 Curriculum in Physical Education** 3-0-3
 Criteria and methods of curriculum construction as they apply to health education and physical education are examined. The modern conceptual approach and its implication on the physical education and health education program P-12 are also explored.
- KSPE 7140 Physical Education for Teachers** 3-0-3
 Growth and developmental patterns of children and development of physical education programs and activities for students in grades pre-kindergarten through grade eight. Integration of the physical education program with the total school curriculum and other school programs is discussed. The course is open to all College of Educations majors eligible for graduate-level coursework.
- KSPE 7160 Human Kinetics** 4-4-6
 The scientific study of human motion as applied to physical activity, fitness, and human performance. Designed to help the master teacher of physical education develop, advocate, and promote knowledge as it relates to the enhancement of human movement and lifetime activity participation.
- KSPE 7170 Foundations of Physical Education** 6-0-6
 Foundations of innovative physical education programs that promote physical activity, fitness, and wellness for a lifetime through positive modeling. Designed to aid the master teacher of physical education in promotion of quality student lifestyles through knowledge and application utilizing historical perspectives, diversity, and technology.
- KSPE 7200 Contemporary Issues in Health and Physical Education** 3-0-3
 An exhaustive inquiry and discussion of contemporary personal, public health, and physical education issues at the local, national, and international levels with special emphasis on the effects of these issues on health and physical education.
- KSPE 7220 Sociology of Sport** 3-0-3
 The relationship between sport and culture is explored and sport's effect on human relations is analyzed.

- KSPE 7230 Psychology of Sport** 3-0-3
The relationship between sport and pertinent psychological principles is investigated. In-depth analysis of research in the area is also undertaken.
- KSPE 7240 Organization and Administration of Physical Education** 3-0-3
Current organizational patterns and administrative techniques are analyzed and applications to practical situations are stressed.
- KSPE 7250 Ethics in Sports** 3-0-3
An investigation of the ethical issues involved in sports and society. This investigation will proceed by applying philosophical techniques in ethical problem-solving. The course will consider what these problems are, how they arise, and possibilities for how they may be solved.
- KSPE 7260 Professional Practices** 6-0-6
An instructional unit encompassing the dynamics impacting the professional growth and development of the physical education master teacher. Interrelationships within teaching and coaching practices are investigated.
- KSPE 7300 Special Topics in Physical Education** 1-0-1 to 6-0-6
Prerequisite: Permission of the instructor. Permits the development of special topics or issues in the areas of health, physical education, health education, health fitness, and sports medicine.
- KSPE 7400 Directed Study in Health Sciences and Physical Education** 1-0-1 to 6-0-6
Prerequisite: Approval of Area Coordinator, Graduate Coordinator, and Department Head. Development and in-depth study of an approved topic of interest pertinent to the fields of health sciences and physical education.
- KSPE 7900 Internship** 1-0-1 to 6-0-6
Prerequisite: Approval of advisor, Program Coordinator, Graduate Coordinator, and Department Head. Provides the students with an opportunity to apply what they have learned in the classroom to actual working situations, as well as learn from professionals with whom they will work in the field.
- KSPE 7910 Capstone Seminar in Physical Education** 2-0-2
Prerequisite: Student must be enrolled for the final semester of the program of study. Reflection and discussion of professional practices relative to the program of study. Presentation and defense of professional electronic portfolio.

LEAD: EDUCATIONAL LEADERSHIP

- LEAD 7010 Ethics and Issues in Educational Leadership** 3-0-3
A study with emphasis on its application to contemporary issues in the field of educational leadership.
- LEAD 7100 Educational Leadership** 3-0-3
An examination of the application of the processes of interpersonal relations and effective leadership and their relationship to successful school programs.
- LEAD 7130 Technology Leadership for School Improvement** 3 hours credit
Instruction and supervised practice leading to educational leadership candidates' application of technology skills designed to foster school improvement and student achievement.
- LEAD 7200 Principles of Curriculum and Instruction for Educational Leaders** 3-0-3
An examination of curriculum development and contemporary changes as they relate to social aims, learner characteristics, and social problems. Existing research in the area of curriculum and instruction pertinent to educational leaders is critiqued. Emphasis is on curriculum and instruction foundations, design, basic concepts, theory, and trends of curriculum from early childhood through secondary levels.

- LEAD 7210 Ethics and Laws** 1-0-1
Review of the major statutes and litigation affecting educational and educational-related areas as well as ethical decision-making practices. Emphasis is on information about professional ethics and behavior appropriate to educational and educationally-related settings.
- LEAD 7300 Fiscal and Facilities Management for Educational Leaders** 3-0-3
Content covers the area of financing of school corporations in the current economic and political setting, with emphasis on interrelationships of educational, economic, and political decisions. Applications of school business management practices to support such services as transportation, food service, plant services are analyzed.
- LEAD 7400 Legal Issues for Educational Leaders** 3-0-3
An overview of the legal structure of education, liability, constitutional rights, contractual relationships, federal and state regulations, collective action, and special education rules and regulations is provided. Historical perspective in law and education with in-depth review of case law, showing the evolution of courts as educational policy makers.
- LEAD 7500 Human Resource Management and Development** 3-0-3
Examination of the recruitment, selection, and induction of new employees; faculty development and evaluation; laws relating to employment practices; and interpersonal skills involved in student, staff, and community relationships.
- LEAD 7650 Leadership Issues in Higher Education** 3-0-3
The processes of effective leadership and their relationship to the success of educational and educationally-related programs at the community level will be analyzed. Organization and administration of relevant settings with a focus on the competencies necessary for leadership and management at the community level.
- LEAD 7700 Supervision of Instructional Programs** 3-0-3
Study of the knowledge and skills necessary for the effective and efficient supervision of instructional programs. A variety of supervisory models will be employed. Knowledge of learning, teaching, and student development will be stressed as a basis for making supervisory decisions.
- LEAD 7800 Organization and Governance of Higher Education** 3-0-3
An introduction to the organization of postsecondary institutions, the governance of these institutions, and the day-to-day as well as the long term administration of such institutions. This course is appropriate for those who are now or will be working in post secondary education at any level as it offers explanation and increased understanding of the organizational dynamics of institutions of higher education.
- LEAD 7810 Finance and Budgeting in Higher Education** 3-0-3
This course considers all sources of financing in higher education, the types and sources of student financial aid, budgeting, and cost effectiveness analysis. In addition, the articulation of each of these issues with the institution's mission and goals is a major thrust of the course.
- LEAD 7820 Assessment and Evaluation in Higher Education** 3-0-3
An introduction to the concept of institutional effectiveness which focuses on an institution's ability to use planning strategies and evaluation information to assess current performance and plan for improvements. The design and appropriate implementation of assessment and evaluation methods as they relate to addressing various accreditation standards will be examined. Examples of how to develop a comprehensive system of evaluation related to missions and goals will be described for academic and non-academic support units.
- LEAD 7830 Law and Policy in Higher Education** 3-0-3
This course is intended to familiarize students with statutory and case law that has implications for higher education administrators and policy makers with particular emphasis on such areas as employment, including affirmative action, dismissal, contracts, civil rights, due process, and student rights.

- LEAD 7900 Internship in Educational Leadership I** **3 hours credit**
Prerequisite: Consent of instructor. A supervised field experience designed for the student to acquire and demonstrate appropriate educational leadership, administrative, and instructional supervision competencies.
- LEAD 7910 Internship in Educational Leadership II** **3 hours credit**
 A supervised field experience designed for the student to acquire and demonstrate appropriate educational leadership, administrative, and instructional supervision competencies.
- LEAD 7921 Internship Preparation in Higher Education Leadership** **3 hours credit**
Prerequisite: Permission of advisor. A supervised internship relevant to the student's program in postsecondary leadership is provided. This field experience is focused on acquiring first-hand knowledge of appropriate leadership, administrative, and management competencies at the postsecondary level.
- LEAD 7922 Internship in Higher Education Leadership** **3 hours credit**
Prerequisite: LEAD 7921 and permission of advisor. A supervised internship relevant to the student's program in postsecondary leadership is provided. This field experience is focused on developing appropriate leadership, administrative, and management competencies at the postsecondary level.
- LEAD 8200 School Reform and Change** **3-0-3**
 Effective strategies and tactics for changing schools, varieties of school restructuring, and the individual and organization dynamics involved in change will be presented. Change and change strategies in formal and informal organizations are foci. Students will develop change strategies and apply them to selected situations.
- LEAD 8300 Social Context of Educational Leadership** **3-0-3**
 A retrospective contemporary and prospective examination of the social, cultural, political, and philosophical contexts from which the current issues that affect schools and schooling have evolved.
- LEAD 8400 Organizational Theory for Educational Leaders** **3-0-3**
 A critical analysis of the theoretical assertions and empirical knowledge claims that have led to the dominant structures, power relationships, and performance expectations of American schools.
- LEAD 8410 Special Education Law for Educational Leaders** **3-0-3**
 Introduction, for practicing and prospective school administrators, to the legal aspects of the education of students with disabilities. Includes statutes, case law, and administrative regulations pertaining to special education
- LEAD 8610 School, Community, and Media Relations for Educational Leaders** **3-0-3**
 This course examines school-community-media relationships and techniques of communication employed between the school and a variety of public groups. Typical situations in which conflict is present in educational and educationally-related settings are analyzed, with a focus on conflict management skill acquisition.
- LEAD 8650 Personnel Issues and Considerations** **3-0-3**
 Role definitions of personnel supervision, analysis of role conflict, needs assessments, observation and diagnosis of teacher classroom performance, writing remedial plans, conducting post observation conferences, and evaluating performance will be discussed. Administration of school personnel policies and practices relating to professional staff, supporting staff, and students will be analyzed.

- LEAD 8660 Business and Finance** 3-0-3
 This course conveys the business and financial functions involved in managing schools, such as staffing, salary, scheduling, inventories, and accounting procedures. Development, implementation, and evaluation of financial resource and allocation systems will be examined.
- LEAD 8680 Site-Based Management** 3-0-3
 Knowledge and skills for implementing shared decision-making, group goal-setting, team-building, and site-based management will be addressed. Skills and procedures for implementing site-based management will be developed.
- LEAD 8710 Directed Study in Educational Leadership** 1 to 3 hours credit
 An intensive study in the student's field of specialization to meet individual needs and interests. No more than two directed study courses may be used in a program of study.
- LEAD 8900 Internship and Field-based Research I** 3 hours credit
 A supervised application of leadership competencies to the resolution of problems in an educational setting.
- LEAD 8910 Internship and Field-based Research II** 3 hours credit
Prerequisite: LEAD 8900. A supervised capstone field-based project involving school improvement.
- LEAD 9000 Special Topics in Educational Leadership** 3 hours credit
 Advanced study focusing on public school improvement and or the improvements of school leaders through student-designed projects, research, or practica that address the program's conceptual framework.
- LEAD 9010 Instructional Leadership for School Administrators** 3-0-3
 Focus on the theoretical and practical knowledge base in educational leadership and the skills and processes needed for school improvement. Emphasis will be placed on leadership for instruction and learning to meet the needs of a diverse community of learners.
- LEAD 9020 Planning for Instructional Leaders** 3-0-3
 Theoretical and practical aspects of change, with emphasis on the knowledge and skills to plan for change in an efficient, effective, and systematic fashion for instructional improvement in schools.
- LEAD 9030 Leadership Problems: Interdisciplinary Analysis** 3-0-3
 The focus of this course is on the application of interdisciplinary analysis and leadership skills to the resolution of educational problems and issues.
- LEAD 9870 School Organizational and Cultural Studies** 3-0-3
Prerequisite: RSCH 9800, RSCH 9820, RSCH 9840, RSCH 9860. Simulation and field practice in developing and implementing educational research on the effects of school organization and culture.
- LEAD 7020 Developing Leadership Capacity in Schools and Communities** 3-0-3
 An examination of the knowledge and skills necessary to increase leadership capacity in schools at all levels and into the extended community. The course addresses the need for developing individual and organizational capacity and the impact of increased leadership capacity on school performance. The student is provided information focusing on leadership practices with increased performance potential.
- LEAD 7110 Inquiry-based Approaches to Curriculum Development, Revision, and Instructional Improvement** 3-0-3
 An examination of curriculum development and contemporary changes as they relate to social aims, learner characteristics, and social problems. Existing research in the area of curriculum and instruction pertinent to educational leaders is critiqued. Emphasis is on curriculum and instruction foundations, design, basic concepts, theory, and trends of curriculum from early childhood through secondary levels.

- LEAD 7120 Instructional Leadership and Supervisory Practices for Improved Teaching and Learning** 3-0-3
 An examination of the knowledge and the development of the skills necessary for the effective supervision of instructional programs. A variety of supervisory models will be employed. Knowledge of learning, teaching, and student development will be stressed as a basis for making supervisory decisions.
- LEAD 7220 Human Resources Leadership for School Improvement** 3-0-3
 An examination of the recruitment, selection, and induction of new employees; faculty development and evaluation; laws relating to employment practices; interpersonal skills involved in student, staff, and community relationships; role definitions of personnel supervision; and administration of school personnel policies and practices.
- LEAD 7230 School and System Fiscal Management and Budgeting** 3-0-3
 A study of the business and financial functions involved in managing schools, to include staffing, salary, scheduling, inventories, accounting procedures, and facilities. Development, implementation, and evaluation of financial resources and allocation systems will be examined.
- LEAD 7310 Leadership for Community and Public Relations** 3-0-3
 An examination of school-community media relationships and techniques of communication employed between the school and the community at large. Typical situations in which conflict is present in education and educationally-related settings are analyzed, with a focus on conflict management skill acquisition.
- LEAD 7420 Ethical and Legal Issues for Leadership** 3-0-3
 An overview of the legal structure of education, including liability, constitutional rights, contractual relationships, federal and state regulations, collective actions, and special education rules and policies. Case law and the evolution of the courts as educational policy makers are examined.
- LEAD 7920/7930 Leadership Field Experiences I & II** 3-0-3 each
 A supervised field experience designed for the candidate to acquire appropriate educational leadership, administrative, and instructional supervision competencies.
- LEAD 8030 School Culture, Change, and Organizational Dynamics** 3-0-3
 A study of organizational culture and its impact on individual and organization performance. Topics include the need for change, the change process, and how organizational structure impacts performance. Students will explore the dynamics within organizations and how schools may create high-performing cultures.
- LEAD 8140 Leadership for Creating an Effective Learning Environment** 3-0-3
 Instruction and supervised practice leading to the candidate's demonstration of the knowledge and skills necessary to create a teaching and learning environment for successful student achievement and school improvement.
- LEAD 8230 Financing and Managing Educational Facilities** 3-0-3
 An examination of the relationship between educational facilities and an appropriate learning environment. The course addresses the role of educational leaders in planning, financing, constructing, modifying, renovating, maintaining, and managing educational facilities. The course includes supervised performance-based field experiences.
- LEAD 8240 Managing Resources for School Improvement** 3-0-3
 An examination of human and fiscal resource management functions necessary for developing successful schools. Procurement, development, evaluation of human resources, evaluation of fiscal resources, and allocation systems will be examined. The course includes supervised performance-based field experiences.

- LEAD 8410 Ethical and Legal Issues for Special Populations** 3-0-3
 An introduction to the legal aspects of the education of students with disabilities and other barriers to educational success. The course includes statutes, case law, administrative regulations pertaining to special populations, and supervised performance-based field experiences.
- LEAD 8510 Building Leadership for the 21st Century** 3-0-3
 An examination of the major functions of building-level leadership including instructional leadership, instructional supervision, resource management, personnel development and evaluation, professional development, and school and community relations. The course includes supervised performance-based field experiences.
- LEAD 8520 Executive Leadership for the 21st Century** 3-0-3
 An examination of the executive leadership position in local school systems. This course includes preparation for becoming an executive leader; planning and decision making; financial issues; employment processes; and working with school boards, staff, and community leadership. The course includes supervised performance-based field experiences.
- LEAD 8620 Leading a Professional Learning Community** 3-0-3
 Instruction and supervised practice leading to the candidate's demonstration of the knowledge, skills, and practice necessary for developing and leading staff to create a teaching and learning environment for successful student achievement and school improvement. The course includes supervised performance-based field experiences.
- LEAD 8630 Coaching and Mentoring For High-performing Schools** 3-0-3
 A study of the knowledge and skills necessary to practice coaching and mentoring for high-performing schools. The course will increase student awareness and knowledge of the impact of coaching and mentoring on individual and organization performance. It also addresses organizational culture and the impact culture has on performance. The course includes supervised performance-based field experiences.
- LEAD 8920 Advanced Leadership Field-Based Experiences I** 6-0-6
Graded "Satisfactory" or "Unsatisfactory." A supervised residency that provides significant opportunities for the leadership candidate to synthesize and apply the knowledge and develop and practice the skills necessary to lead a school or district. The candidate performs substantial, sustained, standards-based work in real settings, planned and guided cooperatively by faculty supervisors and school district personnel.
- LEAD 8930 Advanced Leadership Field-Based Experiences II** 6-0-6
Graded "Satisfactory" or "Unsatisfactory." A supervised residency that provides significant opportunities for the leadership candidate to synthesize and apply the knowledge and develop and practice the skills necessary to lead a school or district. The candidate performs substantial, sustained, standards-based work in real settings, planned and guided cooperatively by faculty supervisors and school district personnel.
- LEAD 8940 Advanced Leadership Field-Based Experiences III** 6-0-6
Graded "Satisfactory" or "Unsatisfactory." A supervised residency that provides significant opportunities for the leadership candidate to synthesize and apply the knowledge and develop and practice the skills necessary to lead a school or district. The candidate performs substantial, sustained, standards-based work in real settings, planned and guided cooperatively by faculty supervisors and school district personnel.

MATH: MATHEMATICS

- MATH 5010 History of Mathematics** 3-0-3
Prerequisite: MATH 2261. A study of the development of mathematics from primitive times to the twentieth century; including numeral systems, arithmetical methods, origins of algebra, geometry, trigonometry, analytic geometry, calculus; and selected topics from modern mathematics.
- MATH 5040 Set Theory** 3-0-3
Prerequisite: MATH 2262. Propositional and predicate logic; mathematical induction. Logic and structure of sets as related to mathematical proof. Relations, and cardinality.
- MATH 5080 Algebraic Structures** 3-0-3
Prerequisite: MATH 3040/5040. An examination of the structural foundations of the secondary school algebra curriculum. Topics include rings, integral domains, groups (including groups of transformations) and polynomials. Emphasis on development of students' deductive reasoning and proof techniques.
- MATH 5140 Mathematics for Special Education Teachers** 3-0-3
Prerequisite: MATH 1111. Fundamental mathematical concepts beginning with prenumber notions and then extending to number concepts, numeration systems, and computational algorithms for whole and rational numbers; geometry and measurement, and the role of technology in mathematics instruction.
- MATH 5161 Mathematics for Early Childhood Teachers I** 3-0-3
Prerequisite: Grade of "C" or higher in either MATH 1101 or MATH 1111 and admission to the Teacher Education Program of the College of Education, or permission of instructor. An in-depth study of the concepts and processes underlying the P-5 school mathematics curriculum, with special emphasis on numeration, number systems, estimation, algebraic thinking, and computational algorithms. Problem solving and historical context serve as unifying strands.
- MATH 5162 Mathematics for Early Childhood Teachers II** 3-0-3
Prerequisite: Grade of "C" or higher in Math 3161. An in-depth study of concepts and processes underlying the P-5 school mathematics curriculum, with special emphasis on measurement, geometry, and the fundamentals of probability and statistics. Problem solving and historical context serve as unifying strands.
- MATH 5163 Numbers and Operations for P-5 Teachers** 3-0-3
Prerequisite: P-5 Teaching Certificate. Students who have already taken MATH 2160, MATH 3161, Math 4161, or MATH 6161 may not receive credit for this course. Major concepts and techniques of numbers and operations in mathematics for P-5 teachers. The course includes multiple strategies, including the use of a variety of manipulatives, to address various learning styles and multiple intelligences as well as a range of assessment techniques for gauging P-5 students' mathematical understanding using problem solving as a unifying strand.
- MATH 5164 Understanding Algebra for P-5 Teachers** 3-0-3
Prerequisite: P-5 Teaching Certificate. Students who have already taken MATH 2160, MATH 3161, Math 4161, or MATH 6161 may not receive credit for this course. Major concepts and techniques of algebra and algebraic thinking in mathematics for P-5 teachers. The course includes multiple strategies, including the use of a variety of manipulatives, to address various learning styles and multiple intelligences as well as a range of assessment techniques for gauging P-5 students' mathematical understanding using problem solving as a unifying strand.

- MATH 5165 Understanding Geometry for P-5 Teachers** 3-0-3
Prerequisite: P-5 Teaching Certificate. Students who have already taken MATH 2160, MATH 3162, Math 4161, MATH 5162, or MATH 6161 may not receive credit for this course. Major concepts and techniques of geometry in mathematics for P-5 teachers. The course includes multiple strategies, including the use of a variety of manipulatives, to address various learning styles and multiple intelligences as well as a range of assessment techniques for gauging P-5 students' mathematical understanding using problem solving as a unifying strand.
- MATH 5166 Understanding Data Analysis and Probability for P-5 Teachers** 3-0-3
Prerequisite: P-5 Teaching Certificate. Students who have already taken MATH 2160, MATH 3162, Math 4161, MATH 5162, or MATH 6161 may not receive credit for this course. Major concepts and techniques of data analysis and probability in mathematics for P-5 teachers. The course includes multiple strategies, including the use of a variety of manipulatives, to address various learning styles and multiple intelligences as well as a range of assessment techniques for gauging P-5 students' mathematical understanding using problem solving as a unifying strand.
- MATH 5180 Mathematics for Middle School Teachers** 3-0-3
Prerequisite: Grade of "C" or higher in either MATH 1101 or MATH 1111. Concepts and processes that provide the foundation for the middle-grades mathematics curriculum (5-8). Includes an in-depth study of the real number system with emphasis on the rational number system and axiomatic differences among number systems. Other topics include relations and functions, geometry (including coordinate geometry and graphing), measurement, and elementary probability and statistics.
- MATH 5190 Algebra and Geometry for Teachers** 3-0-3
Prerequisite: Grade of "C" or higher in either MATH 2261 or MATH 3180. An in-depth study of the concepts and processes underlying the middle and secondary school mathematics curriculum, with special emphasis placed upon the integrated development of algebra, geometry, and analytical geometry. Problem solving and historical context serve as unifying strands.
- MATH 5340 Ordinary Differential Equations** 3-0-3
Prerequisite: MATH 2402 or consent of instructor. Differential equations of first and second order, linear equations of higher order, applications.
- MATH 5510 Foundations of Geometry** 3-0-3
Prerequisite: MATH 3040/5040. A study of Euclidean and non-Euclidean plane geometry from both synthetic and metric approaches. Topics include concepts related to incidence, betweenness, plane separation and convexity, congruence, and parallelism, with some attention given to geometric transformations.
- MATH 5600 Probability and Statistics** 3-0-3
Prerequisite: MATH 2261. Descriptive statistics, probability distributions for discrete and continuous random variables, statistical inference, one way analysis of variance, and regression analysis.
- MATH 6081 Modern Algebra I** 3-0-3
Prerequisite: MATH 4150/6150 or MATH 3040/5040 or consent of instructor. Topics from groups, rings, and fields. Subgroups, cyclic groups, permutation groups, normal subgroups, homomorphisms, Cayley's and Lagrange's Theorems, factor groups, abelian groups, direct products. Introduction to rings and fields.

- MATH 6082 Modern Algebra II** 3-0-3
Prerequisite: MATH 4081/6081. Continuation of MATH 6081 with emphasis on rings and fields. Rings, integral domains, and fields. Vector spaces, extension fields, finite fields.
- MATH 6085 Applied Modern Algebra** 3-0-3
Prerequisite: MATH 4081/6081. Lattices, Boolean algebras, semigroups, binary group codes, binary relations, and graphs. Special emphasis is placed on applications.
- MATH 6110 Number Theory** 3-0-3
Prerequisite: MATH 2262. Elementary properties of integers including divisibility, unique factorization, progressions and prime numbers. Linear congruencies and residue classes, complete and reduced residue systems, Chinese Remainder Theorem, quadratic residues, law of quadratic reciprocity, Theorems of Fermat and Wilson, Fibonacci and perfect numbers, sums of squares, elementary theory of continued fractions.
- MATH 6150 Linear Algebra** 3-0-3
Prerequisites: *Either* MATH 2150 and MATH 3040/5040 *or* consent of instructor. Introduction to the theory of vector spaces, with emphasis on finite-dimensional vector spaces, linear systems, matrices, linear transformations, eigenvalues, and related subjects.
- MATH 6161 Mathematical Reasoning** 3-0-3
Prerequisite: Grade of “C” or higher in either MATH 3162 or MATH 3180 or permission of the instructor. An in-depth study of concepts and processes underlying the P-8 school mathematics curriculum, with special emphasis on informal and formal mathematical reasoning. Problem solving and historical context serve as unifying strands. The analysis and remediation of student errors manifested in the application of conceptual and procedural mathematical knowledge will also be addressed.
- MATH 6260 Mathematical Analysis** 3-0-3
Prerequisites: MATH 3040/5040 *or* consent of instructor *or* MATH 2263 with a grade of “A” or “B”. A study of the principles of mathematical analysis; point set topology in Euclidean and metric spaces, numerical sequences and series, continuity, differentiation, integration, sequences and series of functions.
- MATH 6300 Functions of a Complex Variable** 3-0-3
Prerequisite: MATH 2263. Introductory study of the algebraic and geometric properties of the complex number system and functions of a complex variable. Limits, continuity, and differentiation of complex functions. Analytic functions and the Cauchy-Riemann conditions. Integration of complex functions; Cauchy-Goursat theorem; Cauchy integral formula; the theorems of Morera and Liouville. Taylor and Laurent series expansions. Residues and poles with applications to integration. Conformal mappings.
- MATH 6540 Introduction to Topology** 3-0-3
Prerequisite: MATH 3040/5040. The study of point set topology in metric and topological spaces. Open and closed sets, compactness, connectedness, topological mappings, separation, product and functions spaces.
- MATH 6621 Mathematical Statistics I** 3-0-3
Prerequisites: MATH 2263 and MATH 3600/5600. Distributions of random variables, conditional probability and stochastic independence, multivariate and some special distributions, and distributions of functions of random variables.
- MATH 6622 Mathematical Statistics II** 3-0-3
Prerequisite: MATH 4621/6621. Introduction to statistical inference, sufficient statistic, estimation theory, theory of statistical tests, and inferences about normal models.
- MATH 6625 Topics in Applied Statistics** 3-0-3
Prerequisite: MATH 3600/5600 *or* consent of instructor. Topics in applied statistics will be selected from quality control, sampling theory, nonparametric statistics, experimental design, or regression analysis.

- MATH 6651 Numerical Analysis I** 3-0-3
Prerequisites: MATH 2262 and either CS 1301 or CS 1338. Development and implementation of efficient numerical methods; locating roots of nonlinear equations; solving systems of linear equations; numerical differentiation and integration; interpolation; approximation of functions.
- MATH 6652 Numerical Analysis II** 3-0-3
Prerequisites: MATH 4651/6651 and MATH 3340/5340. Continuation of MATH 6651. Determination of eigenvalues and eigenvectors of matrices; method of least squares, and curve fitting; numerical solutions of ordinary and partial differential equations.
- MATH 6901 Operations Research I** 3-0-3
Prerequisite: MATH 2150 or MATH 4150/6150. Mathematical aspects and applications of operations research. Topics are selected from linear programming (mainly), integer programming, and dynamic programming.
- MATH 6902 Operations Research II** 3-0-3
Prerequisite: MATH 3600/5600 or MATH 4621/6621 (Note that MATH 4901/6901 is not a prerequisite). An introduction to stochastic operations research. Topics are selected from stochastic modeling and optimization, probability models, queuing theory, and Monte Carlo simulation.
- MATH 6910 Mathematical Models** 3-0-3
Prerequisite: MATH 2263 or consent of instructor. An introduction to basic principles and applications of classical mathematical models, optimization models and probabilistic models.
- MATH 6990 Special Topics in Mathematics** 3-0-3
Prerequisite: Consent of instructor and Head of the Department of Mathematics and Computer Science. Topics and credits to be assigned. May be taken more than once if topics are different.

MBA: MASTER OF BUSINESS ADMINISTRATION
(See WMBA for Web-Based MBA Courses)

- MBA 7030 Managerial Accounting** 3-0-3
Prerequisites: ACCT 2101 and ACCT 2102 or their equivalents. An overview of the role of the accounting function in organizations. Emphasis is placed on analyzing financial information to enhance managerial decision making. The course is designed to assist managers in developing processes for evaluating the merits of historical and forecast data and using such information to add value to organizations.
- MBA 7050 Strategic Marketing** 3-0-3
Prerequisites: BUSA 2106 and MKTG 3050 or their equivalents. A study of the strategic managerial aspects of marketing. Topics focus on product, price, promotion, and place in the ethical planning, implementing, and controlling of marketing operations.
- MBA 7300 Advanced Production Techniques** 3-0-3
 A survey of current production management systems and philosophies. Topics include current production systems, quality management concepts, and implementation of manufacturing planning and control systems.
- MBA 7350 Managerial Finance** 3-0-3
Prerequisite: FIN 3350 or equivalent. An advanced study of the theory, principles, and practices that define the finance function in the firm as viewed from the perspective of the financial manager. The topics covered include financial planning, capital budgeting, financing the firm, capital structure management, and dividend policy. Computerized financial models are used to apply financial principles to financial problems and decision making.

- MBA 7500 Managerial Economics** 3-0-3
Prerequisites: ECON 2106 and ECON 2105 or their equivalents. The application of economic principles and methodologies to the decision-making process of a business firm. Key topics include optimization and statistical techniques, consumer behavior, market demand analysis for decision making, demand forecasting, production and cost relationships, cost estimation and forecasting, and business pricing decisions.
- MBA 7630 Organizational Theory and Behavior** 3-0-3
Prerequisite: MGNT 3250 or equivalent. Study of both micro- and macro-organizational behavior. Topics include motivation, leadership, job satisfaction, individual differences, group dynamics, design, organizational structure and processes, organizational politics and organizational conflict.
- MBA 7660 Advanced Quantitative Methods** 3-0-3
Prerequisite: BUSA 2100 or equivalent. A seminar in the procedures, techniques and applications of quantitative methods in business. Topics include classical inference procedures, nonparametric methods, regression analysis, analysis of variance, contingency table analysis, decision theory and an introduction to methods for quality improvement. Computer software will be used in the analysis of data.
- MBA 7700 Current Topics in Business** 3-0-3
 An examination of current topics in business. May be repeated up to a maximum of 6 hours if topics are different.
- MBA 7750 Topics in International Business** 3-0-3
 An examination of current topics in international business. May be repeated up to a maximum of 6 hours if topics are different.
- MBA 7900 Strategic Management** 3-0-3
 An advanced course introducing and applying concepts of strategic management. The course integrates the functional areas of an organization and develops analytical skills. Emphasis is given to the formulation and implementation of strategy in world markets.
- MBA 7990 MBA Directed Study** 3 hours credit
 Directed graduate research or reading in Business. Proper form must be submitted to the Director of the MBA Program at least two weeks before the beginning of the semester.

MFTH: MARRIAGE AND FAMILY THERAPY

- MFTH 6700 Family Sociology** 3-0-3
Also offered as SOCI 6700. The social context of contemporary issues facing families. Includes family history, cross-cultural issues, and research and theory regarding changing gender roles, family violence and abuse, divorce, single-parenting, work families, sexual orientation, non-traditional families and other relevant issues.
- MFTH 6800 Orientation to MFT Practice and Ethics** 3-0-3
 Introduces students to the basic epistemological issues in marriage and family therapy, history of the field and current developments, professional socialization and organizations, ethics and values associated with the practice of MFT. Self awareness critical to practice is also addressed.
- MFTH 6990 Supervisor's Training in Marriage and Family Therapy** 3-0-3
Limited to graduate students who already hold the master's degree and are pursuing the status of "Supervisor in Training" through the American Association for Marriage and Family Therapy. Graded "Satisfactory" or "Unsatisfactory." Offered on an individual basis, readings of supervision, styles, systemic family therapy, and ethics for supervision will be explored.

- MFTH 7050 Class, Gender, and Ethnic Issues in Applied Settings** 3-0-3
Also listed as SOCI 7050. Prerequisite: MFTH 6800 or SOCI 7011. An in-depth study of the sensitivities needed by family therapists and other social science practitioners to the issues of social class, gender, and ethnicity. Addresses the interface between professional responsibilities and ethics and the social and political context of treatment. A multicultural perspective is to be developed by each student.
- MFTH 7101 Family Systems Theories** 3-0-3
Prerequisite: MFTH 6800. An in-depth study of family systems theory. Emphasis on the major schools of thought included in a systems analysis of the family and current issues and ideas within family systems discourse.
- MFTH 7102 Interventions in MFT** 3-0-3
Pre- or co-requisite: MFTH 7101. A review of the various intervention techniques employed by the major theoretical approaches to MFT. Emphasis on skill development, video and role-playing demonstrations, and linking practice to theory and appropriate treatment goals.
- MFTH 7103 Advanced Theories Seminar** 1-0-1
Prerequisite: MFTH 7102. A series of seminars that allow students to develop in depth understanding of at least two theoretical approaches to MFT. Examples of offerings include structural/strategic, experiential, family of origin, narrative/constructivism, feminist, solution-oriented. May be repeated.
- MFTH 7200 Research in Marriage and Family Therapy** 3-0-3
Prerequisite: a statistics course. Quantitative and qualitative methods for research design and data analysis in marriage and family therapy. Emphasis on current outcome and process studies and on critical evaluation and application of research data.
- MFTH 7350 Legal Issues in MFT** 1-0-1
Prerequisite: MFTH 6800. Legal responsibilities and liabilities in the practice of family therapy. Addresses issues such as limits to confidentiality, therapist liability, and client privilege. Includes working with the legal system and relevant aspects of family law.
- MFTH 7400 Psychopathology & Pharmacology in MFT** 3-0-3
Prerequisite: MFTH 6800. Psychological, biological, and medical issues in the practice of MFT and an introduction to pharmacology. Emphasis on DSM IV diagnosis within a systemic context and collaboration with other mental health professionals.
- MFTH 7500 Development in the Family System** 3-0-3
Also offered as SOCI 7500. Human growth and development within the family system. Includes theories of individual development, developmental tasks over the family life cycle, normative and non-normative change, processes of divorce and remarriage, and social, economic, and ethnic influences on the family life cycle. Implications for practice emphasized.
- MFTH 7510 Human Sexuality and Gender** 3-0-3
The cultural, social, physical, psychological, and interpersonal aspects of human sexuality and gender. Includes gender role socialization and the development of gendered identities, sexual functioning and attraction, sexual orientation, and problems related to sex and gender.
- MFTH 7550 Family Stress and Crisis** 3-0-3
Understanding normative and catastrophic stress, trauma, and crisis across the lifespan from a family systems perspective. Focus on approaches to prevention and intervention with families, agencies, and communities.
- MFTH 7600 Practicum in Marriage and Family Therapy** 0-12-6
Prerequisite: MFTH 7102 and approval of the MFT Faculty. Supervised experience in the practice of marriage and family therapy. Includes practice and live supervision at the MFT Training Clinic as well as experience in community placements. Requires a minimum of 20 hours per week. Must be taken three successive semesters for a total of 500 hours of direct client contact.

- MFTH 7601 Treatment Issues in Family Therapy** 3-0-3
Prerequisite: MFTH 7102. Applications of family systems approaches to the treatment of issues facing families in crisis and transition. Addresses grief and loss, substance abuse, family violence and abuse, child and adolescent behavioral problems, and chronic physical and mental illness. Emphasis on conceptualizing and treatment planning.
- MFTH 7602 Couples and Sex Therapy** 3-0-3
Prerequisite: MFTH 7102. Treatment techniques for intimate relationships. Emphasis on premarital and commitment issues, anger and conflict, gender and intimacy, and techniques for treating sexual dysfunctions.
- MFTH 7650 Special Topics in MFT** 1-0-1 to 3-0-3
 A rotating series of seminars addressing important contemporary issues in the field of marriage and family therapy. Examples of topics include working with children, working with adolescents, spirituality, family violence, and substance abuse. May be repeated for credit.
- MFTH 7700 Assessment in Marriage and Family Therapy** 3-0-3
Prerequisites: MFTH 7101 and MFTH 7500. How to assess family processes within a developmental context. Models for assessing family functioning and use of individual and family assessment instruments will be included.
- MFTH 7880 Professional Ethics Seminar** 1-0-1
 Addresses professional issues in the workplace. Includes marketing oneself, politics of the workplace, professional licensure and clinical membership, working in interdisciplinary teams, professional wellness, and the ethics, values, and decision-making associated with current practice issues.
- MFTH 7980 Internship in Marriage and Family Therapy** 0-2-1 to 0-10-5
Prerequisite: MFTH 7600. Supervised experience in the practice of marriage and family therapy in a community placement. Requires enough direct contact hours additional to practicum to total 500 before graduating
- MFTH 7990 Directed Study in Family Therapy** 1-0-1 to 3-0-3
Prerequisite: permission of instructor. Specialized study in an area of Marriage and Family Therapy under the direction of a faculty member.

MGED: MIDDLE GRADES EDUCATION

- MGED 7900 Directed Study in Middle Grades Education** 1-0-1 to 3-0-3
Prerequisites: 15 Hours of Graduate Work with a “B” average. Opportunity for intensive individual study in the student’s field of specialization of an area peculiar to his or her needs.
- MGED 7910 Educational Workshop** 3-0-3
 A concentrated study of contemporary problems and issues relevant to middle grades.

Most credit notations on the far right are in the pattern 3-0-3. The first number is the number of lecture hours (or equivalent) each week; the second number is the number of laboratory hours (or equivalent) each week; the third number, **in bold**, is the number of semester hours credit.