

EDLS 643 THE PRINCIPALSHIP (3) A study of the schools as semiautonomous educational units within the structure of the state and the law, policy, and mandates. Emphases are on developing knowledge and skill in the areas of shared decision making, empowerment, developing a sense of ownership, and formative assessments of school effectiveness.

EDLS 646 IMPROVING THE SCHOOL STRUCTURE AND CLIMATE (3) Focuses on the forces and factors that influence the teaching/learning environment and encourages taking charge of change, as well as leading and facilitating the process and the people involved. Emphasis is placed on assessing current educational institutions and developing strategies for implementing improvements.

EDLS 653 SUPERVISION AND EVALUATION OF INSTRUCTION (3) Focuses on the nature and function of supervision as a means to improve student achievement and teacher effectiveness and examines the roles of the supervisor, the building administrator, and the teacher in establishing effective instruction in each classroom.

EDLS 669 SPECIAL TOPICS IN EDUCATIONAL LEADERSHIP (1, 2, 3) Intensive study of a problem or topic in education. Topic varies according to professor and term offered.

EDLS 670 INDEPENDENT STUDY – EDUCATIONAL LEADERSHIP (1, 2, 3) This course offers the opportunity for students to pursue in depth a topic of special interest within Educational Leadership under the supervision of a faculty member. Can be taken more than once.

EDLS 690 PRINCIPLES OF LEADERSHIP (3) Emphasizes the study of leadership theories as they relate to PK-12 education, higher education, athletics, and any professional environment. Students review current literature on leadership, analyze their own leadership style, and work to expand their capacity to lead through knowledge, skills, and attitudes. Communication skills, team building, and conflict management is emphasized. Additional focus is placed on developing leaders in a professional environment.

EDLS 696-697 LEADERSHIP INTERNSHIP HIGHER EDUCATION FOCUS I-II (3, 3) Provide on-campus experiences enabling the prospective higher education leader to observe, assist and execute a wide-range of leadership and administrative tasks associated with the effective operation of the many facets of a University. The course is under the guidance and direction of supervisors across campus and requires a two-semester sequential commitment.

EDLS 698-699 LEADERSHIP INTERNSHIP PK-12 FOCUS I-II (3, 3) Provide on-site experiences enabling the prospective administrator to observe, assist, and execute a wide range of leadership and administrative tasks associated with school principalship. The course is under the guidance and direction of a supervising principal and requires a two-semester sequential commitment.

EDLS 700 ISSUES AND TOPICS IN EDUCATIONAL LEADERSHIP (3) offered as a post-master's degree course for active building and central office administrators. The course focuses on current and relevant issues and topics related to student learning. The course is designed to improve the instructional leadership skills of practicing administrators so schools become fully accredited and meet the requirement of Adequate Yearly Progress. The course is designed for individuals who hold the MEd and are seeking advanced professional development opportunities. The course may be repeated for credit.

ENVIRONMENTAL SCIENCE COURSES

ENVS 600 CONCEPTS IN EARTH AND ENVIRONMENTAL SCIENCE (3) Focuses on a variety of specific earth and environmental science content, concepts, and laboratory and field skills that teachers are required to address when teaching earth science at the middle and high school levels. Topics include plate tectonics, the rock cycle, Earth's history, oceans, atmosphere, weather and climate, the solar system and universe, and land and water resource issues.

ENVS 610 ASTRONOMY (3) Addresses topics in modern astronomy from the solar system to the wider universe and to ultimate cosmological questions. The emphasis is on easily observed celestial phenomena and understanding their significance, current discoveries coming from interplanetary missions and what they tell us about our own planet, and the latest discoveries and speculations in astrophysics and cosmology.

Relevant course content will be adapted by students into lessons and activities suitable for public schools and other educational settings.

ENVS 631 ENVIRONMENTAL HYDROLOGY (3) This course covers the fundamentals of surface and subsurface water flow and transport, emphasizing the role of groundwater in the hydrologic cycle, the relation of surface and groundwater flow to geologic structure, and the characterization of contaminants in surface and subsurface water. Special emphasis will be placed on improving the laboratory and field skills of middle and high school level biology and earth science teachers.

ENVS 645 PRACTICAL METEOROLOGY (3) This course covers all key aspects of meteorology ranging from basic atmospheric processes to human induced climate change. Various weather events, tropical weather, air pollution, and forecasting are all addressed, with an emphasis on practical applications and impacts on our daily lives. Special emphasis will be placed on improving the laboratory and field skills of middle and high school level biology and earth science teachers.

ENVS 650 WATER QUALITY (3) Focuses on integrated content in environmental science, chemistry, and biology that applies to water quality assessment. Appropriate laboratory and field skills for teachers, in any of the scientific disciplines listed above, are addressed. Topics include water quality issues, bacterial monitoring, chemical assessment, and biological assessment. Emphasis is on pedagogical approaches to applying these concepts in the classroom. This course is included within the graduate course sequence in biology.

ENVS 660 APPLIED GEOLOGY (3) Covers all key aspects of the earth sciences including basic geologic principles such as mineral and rock identification; geomorphic processes such as faulting, volcanism, mass wasting, weathering, and sedimentation; plate tectonics; and the interactions between geologic and hydrologic processes. Special emphasis will be placed on improving laboratory and field skills of earth science teachers at middle and high school levels.

ENVS 665 FUNCTIONAL OCEANOGRAPHY (3) This course explores the oceans, their functions, and their processes and addresses ocean currents, water chemistry, heat and energy transfer, sea floor geology, and coastal interactions across our planet. Special emphasis is placed on improving the laboratory and field skills of middle and high school level biology and earth science teachers.

ENVS 680 APPLIED GEOGRAPHY (3) Comprehensive overview of geographic principles with examples from the physical and social sciences. Technologies such as Geographic Information Systems (GIS) and Global Positioning Systems (GPS) will be used to understand and demonstrate topics, with an emphasis on pedagogical approaches to applying these concepts in the classroom.

HEALTH INFORMATICS MANAGEMENT COURSES

HIM 600 INTRODUCTION TO HEALTH CARE OPERATIONS (3) This course is a required program prerequisite for students with no prior experience or coursework in healthcare management. It provides students with an overview of the functions and an operations of the healthcare system in the United States with particular focus on hospitals and large, specialized clinics. Course may be waived with permission of the program director.

HIM 601 INTRODUCTION TO HEALTH INFORMATICS (3) This course provides an overview of health informatics/information management and the role of informatics in the health care delivery system. The principles and practice of healthcare informatics are explored as they relate to the application, analysis, management, and architecture of health data. Students will be introduced to data mapping, data structures, and data management policies and procedures. The course also addresses clinical terminology and classification systems. Discussion also covers ICD-10 classification system, health record content, documentation standards, and data privacy and governance.

HIM 605 HEALTH SYSTEM MANAGEMENT (3) This course introduces the principles of management and leadership as they relate to the use of information technology as a tool for achieving organizational goals and objectives. The course covers such topics as the use of IT as a strategic tool, strategic and operational planning for IT, and the supervision of knowledge workers. The course will address the various ways that information technology can aid in operations management and strategic decision-making processes.

HIM 607 HEALTH FINANCIAL MANAGEMENT (3) Prerequisites: HIM 601 and HIM 605: This course provides students with an understanding of the general principles of accounting and financial management applied in the healthcare environment. The course includes an overview of revenue sources for various healthcare entities. The Diagnosis-Related Group (DRG) system of service classification and its relation to payment for providers and organizations also are examined. The fundamentals of strategic planning, cost concepts, and capital budgeting are applied in the healthcare environment. Issues the development and management of budgets are examined. This course provides students with theory, tools, and practical experience in healthcare financial management.

HIM 610 HEALTH SERVICES MANAGEMENT AND STRATEGY (3) Prerequisites: HIM 607 and HIM 625: This course is an in-depth study of health care institutions and organizations, their structure, types of care provided, operational strategy, and environment. The roles and functions of managing health services organizations within the context of the operational environment and its impact are explored.

HIM 625 MANAGEMENT OF INFORMATION TECHNOLOGY AND STRATEGY (3) Prerequisites: HIM 601 and HIM 605: This course is an overview of historical, current, and emerging health information systems and technologies. Students will apply a system life-cycle process to the adoption, management and maintenance of an electronic health record system. Topics include artificial intelligence, decision support systems, report generation, data analytics, workflow processes, health information exchange, enterprise information management, training and development, data quality, user interfaces, data capturing technologies, personal health records, and population health.

HIM 635 RESEARCH METHODS IN HEALTH INFORMATICS (3) Prerequisites: HIM 607 and HIM 625: This course addresses the use of descriptive and inferential statistics and research design and methods as they relate to healthcare and healthcare informatics. Emphasis is placed on the analysis and use of clinical and administrative data in decision making; health care planning; informatics research; and policy development. Other topics addressed include institutional review boards, research ethics, and the interpretation and presentation of data.

HIM 645 HEALTH INFORMATICS ACQUISITION MANAGEMENT (3) Prerequisites: HIM 610 and HIM 635: This course addresses the management practices related to the acquisition of informatics systems, components, and services. Emphasis is on the importance of both organizational and informatics strategic planning. Issues related to the development of the long- and immediate-range acquisition plans, financial planning and budgeting, integration of the proposed systems within the overall goals of the enterprise and with existing systems.

HIM 650 HEALTH INFORMATICS PROJECT MANAGEMENT (3) Prerequisites: HIM 645 and HIM 653: This course explores the fundamental principles and practice of managing informatics programs and projects. The dynamic nature of IT and health care informatics and the effect of life cycles are explored. Management theories as they relate to project planning, organizational structure, team building, and effective control mechanisms are discussed. Students gain a solid foundation informatics project management so that they can successfully manage each phase of the project life cycle, work with in organizational and cost constraints, set goals linked directly to stake holder needs, and utilize proven management tools to execute a dynamic project on time and within budget.

HIM 653 HEALTH DATA MANAGEMENT (3) Prerequisites: HIM 610 and HIM 635: This course introduces data management and database technologies, data modeling tools, relational database design, use, and implementation and the use of the structured query language (SQL). Data warehousing and more analytic databased also are introduced, along with online analytic processing (OLAP) tools to support decision making. Other topics covered in this course include data quality, emerging cloud databased, and data mining.

HIM 654 HEALTH DATA MANAGEMENT II (3) Prerequisites: HIM 645 and HIM 653: This course provides overview of the functions, limitations, opportunities and challenges presented by integrated electronic medical records from a data management perspective. This course also covers the legal and ethical issues related to integrated electronic medical records data security. Due to the sensitive nature of patient medical records this course also address the theories and techniques for ensuring and managing information security. Information security topics covered include cryptography; authentication; and access control techniques, and their

ing strategies. This course is focused on the integration of theory with practice.

LS 604 STRATEGIC COMMUNICATIONS AND PUBLIC RELATIONS (3) This course is intended to examine the fundamental role of communications and public relations. Students will learn to craft messages and communications materials for key constituencies and stakeholders. Students will learn about implementing tactics including public relations and advertising.

LS 606 CHANGE AND ORGANIZING IN THE COMMUNITY (3) This course will be exposed to a variety of change models and their inherent assumptions including but not limited to: revolution, labor, civic rights, and environmental movements of social change. Participants will conduct a community analysis for their nonprofit or for another nonprofit.

LS 608 NONPROFIT FINANCE (3) This course will prepare students to oversee the financial management of nonprofit organizations by focusing on five areas: financial policies and internal controls; financial statement presentation and analysis; revenues, expenses, liabilities, and cash management; budgeting; audit and tax reporting.

LS 610 LEADERSHIP RESEARCH, EVALUATION, AND ANALYTICS (3) This course prepares students to undertake the research, design and evaluation process employed in nonprofit organizations. Students will learn the fundamentals of 1) assessing community needs, 2) using theory to guide program design, 3) identifying and evaluating research literature that supports program development, 4) designing evaluation studies, and 5) modifying services based on evaluation results.

LS 612 LEADING IN A DIGITAL ENVIRONMENT (3) This course is intended to explore the use of technology to enhance the transparency and performance of organizations. It will also focus on the role of social media in engaging stakeholders in organizational priorities.

LS 614 LEADING BOARDS AND STAFF (3) This course intends to prepare students to develop and manage boards of directors of nonprofits, as well as human resources. Topics include legal and operating definitions, the purpose, function, role and appropriate board structures; supporting systems; how to assemble a board of directors; how to build positive board/staff relationships; how to coordinate the work of a board; how to prepare and manage board information flow; how to evaluate board effectiveness; and how to develop human resource management.

LS 616 FUNDRAISING AND GRANT WRITING (3) This course is intended to examine the fundamental role of fundraising and grant writing. Students will learn to develop support from individual donors and institutional funders (foundations, corporations, government agencies), and gain knowledge of common fundraising cycles and philanthropy programs. The course will also cover the cultivation and solicitation of individuals, the role of boards in fundraising, grant writing, and special events. Throughout the course, there will be discussions on ethical issues, technical tools and skills and the management of the fundraising department within an organization.

LS 669 SPECIAL TOPICS IN NONPROFIT LEADERSHIP STUDIES (1,2,3) Intensive study of a problem or topic in nonprofit leadership studies. Topic varies according to professor and term offered.

LS 670 INDEPENDENT STUDY IN NONPROFIT LEADERSHIP STUDIES (1,2,3) This course offers the opportunity for students to pursue in depth a topic of special interest within Non-profit Leadership Studies under the supervision of a faculty member. Can be taken more than once.

LS 690 CAPSTONE: STRATEGIC PLANNING AND LEADERSHIP (3) This course will focus on methods of identifying strategic questions and directions for nonprofit organizations by taking students through planning processes with client.

LS 699 NON-PROFIT LEADERSHIP INTERNSHIP (3) This Internship provides the student with a supervised work experience in a Non-Profit organizational setting in which principles of the Non-Profit Leadership program are applied. Examples of a work setting are those organizations which are tax exempt under section 501c3 of the Internal Revenue Code.

LS 800 HUMAN RESOURCE MANAGEMENT (3) This seminar is designed to introduce doctoral students to the basic functions and issues related to human resource management (HRM). The emphasis is mastering core concepts that drive research and practice, developing an understanding of the research foundations that underpin the field, and building an appreciation for the intellectual history and evolution of HRM from the perspective of organizational leaders. Topics include strategic human resource management, recruitment, selection, performance evaluation, training and development, compensation, and labor relations. While the primary goal of the course is to enhance students' scholarly insight and understanding of the development and knowledge in the field, the course will also emphasize the practical application of the research knowledge to organizations.

LS 801 EPIDEMIOLOGY OF COMMUNITY PUBLIC HEALTH ISSUES (3) This examination of community health issues from an epidemiological perspective provides the principles for future leaders to assess and analyze health needs in an organization. Major areas addressed by leaders are concepts related to health promotion and disease prevention; ability to access accurate health information; ability to practice health-enhancing behaviors and reduce health risks; understanding the influence of culture, media, technology, and other factors on health; demonstrating the ability to use interpersonal skills to enhance health; and, demonstrating the ability to advocate for personal, family, and community health.

LS 802 QUANTITATIVE RESEARCH (3) Preparation for students to inquire, explore, and engage in quantitative research design, implementation, and reporting. It further addresses generating cooperative approaches with stakeholders to solve identified problems in organizations using quantitative strategies and collecting data, analyzing data, and drawing reasonable conclusions from those data.

LS 803 LEGAL AND ETHICAL DIMENSIONS OF LEADERSHIP (3) Students expand their ability to inquire, explore, engage, conclude, and persuade in areas related to the legal and ethical issues of communities. Students examine leadership, social capital, vision, and cooperation in communities and ways in which collaboration can be developed within legal and ethical boundaries.

LS 804 QUALITATIVE AND ACTION RESEARCH (3) Integration of major concepts and practices of qualitative and action research methodology. A critical overview of theory and practice is delivered as it considers mainstream qualitative research traditions, including case study, phenomenology, ethnography, grounded theory, and participatory/action research to prepare students for conducting qualitative and action research in the course and for the dissertation. This course addresses the role of action research in studying the underlying problems that occur in educational and community organizations.

LS 805 COMMUNITY DYNAMICS (3) Students will explore areas related to cross-cultural and community dynamics. The course will emphasize the synthesis of issues of diversity and leadership within organizations and the development of appropriate strategies for improving communities through cooperative and joint efforts.

LS 806 PUBLIC POLICY (3) Exploration of policy-making as a problem-solving process and a political process. It provides students with a set of conceptual frameworks for analyzing the political environment of public policy and policy research and analyzing public policy problems. Students learn how to formulate effective strategies to address public policy challenges.

LS 807 GOVERNMENT, POLITICS, AND LEADERSHIP (3) Consideration of the problem of political leadership, commonly assumed to be necessary, but often also feared as dangerous. Beginning with Machiavelli's classic study, *The Prince*, students consider a variety of approaches to the problem, with special attention to the U.S.'s constitutional democratic order. Having established that context, the course explores the implications of various models of political representation and leadership as applied to the conduct of local government institutions and non-profit organizations. Course materials are drawn from readings in political philosophy, constitutional history, biography, and contemporary social science.

LS 808 DISSERTATION SEMINAR: RESEARCH AND READINGS IN LEADERSHIP STUDIES (3) Students are exposed to a variety of leadership literature to prepare them for dissertation completion. Students are expected to come to the course with an understanding of their potential dissertation topic and leave the course with a dissertation proposal including review of the literature, statement of the problem, and a researchable question.

LS 809 ORGANIZATIONAL LEADERSHIP AND CHANGE (3) Principles for future leaders to assess and initiate appropriate and effective organizational change. Strategies are presented, examined, and discussed about ways to lead an organization forward in a collaborative manner for the betterment of colleagues and the mission of the community agencies, non-profits, schools, universities, or businesses.

LS 811 ORGANIZATIONAL COMMUNICATION (3) Focus on a variety of issues associated with professionals working in management or supervisory positions in organizations. Students engage in practice and application of organizational communication theory in areas such as internal communication strategies, public presentations to groups, communicating with the media, and crisis communication.

LS 813 SYSTEM DESIGN AND TOOLS FOR SUSTAINABILITY (3) An overview of the importance of design systems that can help establish sustainable practices in homes, workplaces, and communities. Ethical and sustainable designs, infrastructures, and energy systems are reviewed along with examples and cases studies. Tools for understanding, measuring, and reducing the environmental impact of organizations on the environment are demonstrated, with an emphasis on how best to implement strategies that promote sustainability and are economically viable.

LS 814 RESEARCH DESIGN AND LITERATURE REVIEW (3) The purpose is to enable students to understand and apply key principles concerning appropriate research practice as related to design and methodology and to demonstrate the ability to communicate effectively in written form using appropriate professional writing style. The course will also focus research and written communication skills within the context of a study of leadership considerations in a particular domain (e.g., as related to diversity and disability within educational, governmental, non-profit, or business settings).

LS 815 LEADERSHIP MODELS AND PRACTICE (3) This seminar expands leadership capacity and is designed to engage candidates in the exploration of various leadership models and frameworks that energize organizations and expand the leadership capacity of others.

LS 869 SPECIAL TOPICS IN LEADERSHIP STUDIES (3) Intensive study of a problem or topic in leadership studies. Topic varies according to professor and term offered.

LS 890 DISSERTATION RESEARCH (6) This course gives students the opportunity to apply what they have learned in the program by identifying a problem in their organization, developing research initiatives, and implementing the research to improve the organization. Students will be expected to defend their dissertation proposal successfully.

LS 891 DISSERTATION CAPSTONE (6) Application of what students have learned in the program by identifying a problem in their organization, developing research initiatives, and implementing the research to improve the organization.

LS 892 EXTENDED DISSERTATION RESEARCH (3) *Prerequisites: LS 890, LS 891.* This course is intended as an option to provide doctoral students with an opportunity to extend their dissertation research. **CAN BE TAKEN MULTIPLE TIMES.**

MATHEMATICS COURSES

MATH 601 RATIONAL AND IRRATIONAL NUMBERS: THE FOUNDATION OF REAL ANALYSIS (3) This course explores the basic structure of the Real Number system, with a focus on the properties of rational and irrational numbers. Topics will include basic properties of numbers, rational and irrational approximation, and transcendental number theory.

MATH 602 POLYNOMIALS: AN EXPLORATION OF ALGEBRAIC STRUCTURES (3) This course explores the basic structure of abstract algebra using polynomials as the primary examples. Topics will include basic properties of groups, rings, fields, and properties of polynomials.

MATH 603 POINT SET TOPOLOGY (3) This course covers the beginning elements of general topology including: set theory, topological spaces, separation axioms, compact spaces, locally compact spaces, connected spaces, continuity and homeomorphism, and metric spaces.

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MATH 604 **THEORY OF NUMBERS (3)** This course explores the properties of the integers and related structures through the use of various algebraic techniques, beginning with a study of the Euclidean algorithm, divisibility, primes, and congruence. Additional topics will be selected from the Chinese Remainder Theorem, Diophantine equations, residues, quadratic reciprocity, primitive roots, number-theoretic functions, continued fractions, unique factorization, algebraic integers, number fields, equations over finite fields, and other topics in Number Theory.

MATH 605 **THE MATHEMATICS OF CODING THEORY (3)** This course will explore the mathematics necessary for communicating information in the presence of noise. Topics will be selected from decoding algorithms, linear codes and basic vector space theory, Hamming codes, Reed Solomon codes, BCH codes, minimum weight and distance, and error detection and correction schemes.

MATH 606 **MATH EXPLORATIONS (3)** This course will allow students to explore the world of mathematical problem solving, focusing on the use of computers, models, and examples to investigate problems rather than formal rigid processes to uncover a solution. Selected topics will include, but will not be limited to, number theory, probability, mathematical modeling, graph theory, fractals, real analysis, and open math problems.

MATH 610 **MATHEMATICS EDUCATION (3)** This course will focus on the principles and practices of mathematics education (K-12) and will address appropriate research on effective strategies for enhancing mathematics learning among all students. The course will include attention to the development of curriculum, instructional methodologies, and assessment strategies.

MATH 669 **SPECIAL TOPICS IN MATH (3)** This course provides intensive study of a problem or topic in mathematics. The focus varies according to professor or term.

MASTER OF BUSINESS ADMINISTRATION COURSES

MBA 600 **ADVANCED BUSINESS PRINCIPLES (6)** This course covers key concepts in accounting, economics, statistics, and other business disciplines. Special attention is given to developing analytical tools and knowledge in support of the MBA curriculum.

MBA 601 **HUMAN RESOURCES MANAGEMENT (3)** A study of ways in which appropriate human resources can be provided for an organization. The course focuses on recruitment, selection, training, and performance appraisal. The principles of planning, organizing, motivating, and controlling will also be discussed as they relate to the management of human resources.

MBA 602 **ORGANIZATIONAL BEHAVIOR AND MANAGEMENT (3)** Managers are confronted by new challenges created by the global economy, pressures to improve performance, and demands to produce more with less. Students will learn how organizations operate as systems through diverse strategies. Materials are drawn from a range of perspectives including management, organizational psychology, and sociology. The course will integrate these perspectives and stress their application to organizations.

MBA 607 **MANAGERIAL ACCOUNTING (3)** *Prerequisite: MBA 600.* A study of managerial information to support management decision making. Emphasis is placed on the management control structure and management control process within organizations. Consideration is given to types of responsibility centers, performance evaluation, planning, and budgeting.

MBA 608 **MANAGERIAL ECONOMICS (3)** *Prerequisite: MBA 600.* A study of the use of economic theory in management decision-making. Emphasis is placed on marginal analysis, practical use of economic theory, and regression analysis. Demand and supply, cost analysis, economic forecasting, and pricing policies are important areas of study covered.

MBA 609 **MARKETING MANAGEMENT (3)** A study of the important role of marketing in today's organizations and marketing's relation to other functions. Strategic marketing thinking is promoted through an understanding of the contemporary marketing theories guiding marketing management's decisions. These theories and strategies address the importance of facilitating an organization's internal and external relationships while emphasizing the creation of mutual value in an ever-changing business environment. Strategic

marketing thinking, analytical skills, and decision-making abilities are developed through readings, analyzing real-world cases, in-class discussions, and/or consulting projects.

MBA 611 **MANAGERIAL FINANCE (3)** *Prerequisites: MBA 607, MBA 608.* A study of corporate financial structure, sources of capital, cash forecasting, short-term borrowing versus long-term capital acquisition, capital expenditure budgeting, and related financial matters.

MBA 651 **PRODUCTION AND OPERATIONS MANAGEMENT (3)** *Prerequisite: MBA 600.* A tool-skills course that examines basic production systems. The course includes linear regression, forecasting, linear programming, transportation models, inventory models, scheduling techniques, and other applications of quantitative analysis.

MBA 655 **LEADERSHIP AND ETHICS (3)** A professional development course designed around multi-disciplinary concepts to help students become successful business and business ethics leaders. Students will be given an ethics model to use in decision making. Examples from classical literature will be used to analyze leadership styles and approaches to handling ethical issues.

MBA 657 **MANAGEMENT INFORMATION TECHNOLOGY (3)** An up-to-date, management-oriented overview of computer application and information systems from the perspective of a business professional. The course focuses on competitive uses, impact of information systems on individuals and organizations, alternative methods for building systems, factors leading to successful system implementation, and threats and risks associated with information systems.

MBA 670 **RISK MANAGEMENT (3)** *Prerequisite: MBA 608.* This course introduces students to essential strategies for assessing and managing a wide variety of business risks, including, but not limited to, project risk, supply chain risk, country risk, and currency risk. The course covers a variety of risk management/mitigation techniques and strategies, including, but not limited to, the use of insurance, hedging, diversification, forecasting, and process/structure reengineering. Primary emphasis is placed on the manner in which risk factors are optimally incorporated into organizational decision making. The course also addresses the distinction between risk and uncertainty, and introduces students to scenario planning techniques.

MBA 677 **INTERNATIONAL BUSINESS STUDY TOURS (3)** A study tour experience outside the country to deepen understanding of other cultures and to learn how the requirements for operating a successful enterprise differ from those in the U.S. A series of papers completed prior to and following the study-tour experience is required. (Students who may have participated in BUAD 377 are also eligible to take this course, since it focuses more on strategic management perspectives and higher order learning goals.)

MBA 680 **PROJECT MANAGEMENT (3)** This course introduces established norms, methods, processes, and practices in project management.

MBA 690 **GLOBAL BUSINESS COMPETITION AND STRATEGY (3)** *Prerequisites: All required core courses except MBA 655 and MBA 670.* This is an analytic course designed to apply knowledge and skills learned from different courses through cases and a single integrative exercise. Team presentations are required.

MBA 696 **SPECIAL TOPICS IN BUSINESS (1, 2, 3)** *Prerequisite: Consent of instructor.* In-depth pursuit or advanced study in a special business topic not covered (or not covered as fully) in regular course offerings and taught in a traditional course format. Topics include tax law changes, leadership development and training, family business management, mergers and acquisitions, and international market planning (under the auspices of the Virginia Department of Economic Development International Trade Services program).

MBA 697 **SPECIAL PROBLEMS IN BUSINESS ADMINISTRATION (1-3)** *Prerequisite: Consent of instructor.* Includes research, special activities, and conferences offered on an individual or group basis. Subject to the development of a plan of study acceptable to a major professor and the dean of the College of Business, a student or group of students may pursue almost any business-related topic of special interest.

MBA 698 **BUSINESS INTERNSHIP (1, 2, 3)** *Prerequisite: Graduate students with a 3.0 minimum QPA.* Internships in cooperation with a faculty sponsor who is responsible for academic quality and

who assigns the final grade. Student interns may or may not be paid for their work.

MASTER OF PUBLIC HEALTH COURSES

MPH 605 PUBLIC HEALTH NEEDS ASSESSMENT & PLANNING (3) This course will assist students in identifying and gaining proficiency in the application of a variety of skills utilized by the health professional in planning and designing health promotion programs. Students will learn to utilize theoretical models to conduct needs assessment, write program objectives and design model-driven intervention strategies for various public health settings.

MPH 610 BIOSTATISTICS (3) This course prepares the student in the development and application of statistical reasoning and methods used to gather, analyze and interpret health data in public health; healthcare; biomedical, clinical and population-based research. Fundamentals will include descriptive statistics, estimation, hypothesis testing, precision, sample size, correlation, problems with categorization for continuous variables, multiple comparison problems, and interpreting of statistical results.

MPH 615 ENVIRONMENTAL HEALTH (3) An introduction to the chemical, physical and biological factors affecting human health and disease, and how monitoring and control techniques can reduce the impact of the environment on global health.

MPH 620 SOCIAL ASPECTS OF PUBLIC HEALTH (3) An overarching goal of the Healthy People Initiative is to “achieve health equity, eliminate disparities, and improve the health of all groups”. From a social ecological perspective, this course examines factors contributing to health disparities and explores how to address determinants of health so that health equity may be achieved through the promotion of health and the prevention of disease among all groups.

MPH 625 PUBLIC HEALTH IMPLEMENTATION & EVALUATION (3) The second of a two-course sequence (MPH 605, MPH 625) that provides students with a comprehensive overview of the practical and theoretical principles and skills needed to plan, implement, and evaluate health promotion programs in public health settings. Emphasis is placed on specific methods and models used, public health data, an understanding and evaluation of health promotion theories, and applications made to the design to change the determinants of behavior.

MPH 630 EPIDEMIOLOGY (3) An introduction to epidemiology as a body of knowledge and a method for analyzing public health issues. Emphasis is on how to measure and describe the health of populations the natural history of diseases in population groups, standardization of rates, sources of data, study designs, measurements of risk, evaluation of screening tests, casual inferences and outbreak investigation.

MPH 635 COMMUNITY HEALTH ADMINISTRATION (3) An introduction to the structure and functions of the American health-care system, public health practice in the United States and basic managerial responsibilities. Emphasis is on management tasks and styles, structure and trends of the health-care system, legal and regulatory framework for public health, organizational and community assessment, public health settings and services.

MPH 640 ETHICAL ISSUES IN PUBLIC HEALTH (3) This course examines ethical theories and explores health-related ethical issues, preparing students to uphold professional ethics, to identify and evaluate ethical dilemmas, and to make ethical decisions within the context of health profession

MPH 650 PUBLIC HEALTH INTERNSHIP (3) Apply knowledge of public health core competencies in a working public health setting under the supervision of a preceptor.

MPH 651 PUBLIC HEALTH INTERNSHIP (6) Apply knowledge of public health core competencies in a working public health setting under the supervision of a preceptor.

MPH 652 PUBLIC HEALTH INTERNSHIP (9) Apply knowledge of public health core competencies in a working public health setting under the supervision of a preceptor.

MPH 655 PUBLIC HEALTH CAPSTONE SEMINAR (3) Demonstration of the synthesis

and integration of knowledge gained through the coursework and other learning experiences with the application of theory and principle to various public health issues. Students will write a prospectus paper building upon their internship experience to demonstrate how they will continue that work, and what outcomes they will accomplish in the coming 5-10 years.

MPH 669 **SPECIAL TOPICS IN PUBLIC HEALTH (1,2,3)** Intensive study of a problem or topic in Public Health. Topic varies according to professor and term offered.

MPH 670 **INDEPENDENT STUDY IN PUBLIC HEALTH (1,2,3)** This course offers the opportunity for students to pursue in depth a topic of special interest within Public Health under the supervision of a faculty member. Can be taken more than once.

MUSIC COURSES

MUSC 504 **GRADUATE MUSIC THEORY REVIEW (2)** Music theory course that covers basic and elaborated tonal harmonic languages, overview of sixteenth and eighteenth-century counterpoint and rudiments of forms and analysis.

APPLIED MUSIC (1) Private instruction in applied music. An extra, non-refundable fee is required. The student will arrange his/her lesson time with the instructor.

- MUSC 601** **PIANO**
- MUSC 602** **ORGAN**
- MUSC 603** **VOICE**
- MUSC 604** **WOODWIND**
- MUSC 605** **BRASS**
- MUSC 606** **PERCUSSION**
- MUSC 607** **STRINGS**

ENSEMBLE (1) Each graduate student is required to participate for credit in one of the Music Department ensembles each semester for a total of four semester hours.

- MUSC 612** **GRADUATE ENSEMBLE–CHORAL UNION**
- MUSC 613** **GRADUATE ENSEMBLE–WIND SYMPHONY**
- MUSC 614** **APPLIED CONDUCTING–CHORAL (1)** Private conducting lessons.
- MUSC 615** **APPLIED CONDUCTING–INSTRUMENTAL (1)** Private conducting lessons.
- MUSC 621** **RESEARCH METHODS IN MUSIC (3)** A survey of materials and references in the field of music and bibliography and research in music that provides a foundation for basic methods of research. Areas of emphasis include bibliographical problems, practical research, and the writing of a research document.

MUSC 624 **MUSIC AND LITERATURE OF THE BAROQUE ERA (3)** This survey course traces the development of musical thought and expression from 1580-1750. This era in music history produced at its inception the innovative ideas of Monteverdi and Schultze and culminated with the works of Handel and Bach.

MUSC 625 **MUSIC AND LITERATURE OF THE CLASSICAL ERA (3)** This survey course traces the development of musical thought and expression from 1750-1825. An exploration of classical style, including the origins, confluence of performance practices, evolution of classicism, and the historical perspectives of this time era are emphasized.

MUSC 626 **ANALYSIS AND PERFORMANCE (3)** *Prerequisite: A passing grade on the music theory diagnostic exam or successful completion of graduate theory review.* This course involves advanced score analysis techniques that all conductors should know. Macrocosm to microcosm analyses lead to a better understanding of music and conducting preparation.

MUSC 627 **MUSIC AND LITERATURE OF THE ROMANTIC ERA (3)** This course traces the development of musical thought and expression from 1825-1900. An exploration of style, including the origins, confluence of performance practices, evolution of romanticism, and the historical perspectives of this time era are emphasized.

MUSC 628 **MUSIC AND LITERATURE OF THE ROMANTIC ERA (3)** This survey course traces the developments of musical thought and expression from 1900 to the present. An exploration of style, including the origins, confluence of performance practices, evolution of contemporary society, and the historical perspectives of this time era are emphasized.

MUSC 631 **PRACTICUM IN CHORAL CONDUCTING (1)** This is a practicum ensemble for choral conductors. The course stresses development of effective rehearsal techniques such as conducting gestures, error detection, and rehearsal pacing in a laboratory setting. Each conducting student chooses, prepares, and rehearses music with other students, and the instructor provides feedback on the student's rehearsal and conducting effectiveness.

MUSC 632 **CHORAL METHODS (3)** This is a hands-on study of choral and vocal pedagogy for choral conductors. The course explores theories and practices of vocal/choral tone, their production, and their effect in both solo and choral singing, especially with regard to quality, dynamics, blending, intonation, and diction.

MUSC 633 **CHORAL LITERATURE AND STYLE ANALYSIS (3)** This course is an in-depth study of choral literatures with emphasis on historical context, performance practice, interpretive issues, performance techniques, and conducting problems.

MUSC 641 **PRACTICUM IN INSTRUMENTAL CONDUCTING (1)** A study of techniques and interpretive skills of the instrumental ensemble conductor to successfully realize the written score. Student participation in a lab setting is required.

MUSC 642 **INSTRUMENTAL METHOD AND PEDAGOGY (3)** A study of instrumental music education developed through the examination of instructional materials and curriculum organization. Emphasis will be placed on pedagogical literature, administrative strategies, recruitment, and special interest groups (jazz/ marching band) appropriate for instrumental music programs.

MUSC 643 **SYMPHONIC LITERATURE (3)** A survey of literature for the symphony orchestra from its inception to the present with an emphasis on standard works.

MUSC 644 **HISTORIC WIND BAND LITERATURE TO 1950 (3)** A study of historical, social, and stylistic trends unique to the wind band literature from the Renaissance period (Gabrieli) to traditional wind works of Mozart, Mendelssohn, Berlioz, Holst, Grainger, Poulenc, and others up to 1950.

MUSC 645 **CONTEMPORARY WIND ENSEMBLE LITERATURE (3)** A study of wind ensemble literature since 1950, with emphasis on performance analysis and conducting techniques in the works of Schuller, Hindemith, Persichetti, Arnold, Painter, Reed, and others.

MUSC 699 **GRADUATE PROJECT (2)** All students are required to present a full conducting recital. Students will select, study, and rehearse an approximately sixty-minute recital under the guidance of his/her major advisor. Graded pass/fail by the committee.

NURSING

NRSRG 622 ORGANIZATIONAL BEHAVIOR AND MICROSISTEM MANAGEMENT IN HEALTHCARE (3) This 3 credit course is required for students in the Clinical Nurse Leader track of the Master's Program. A major role of the Clinical Nurse Leader is to provide leadership at the center of the microsystem to promote quality outcomes. Students will learn and apply theoretical concepts related to organizational behavior through online discussions, case analyses, and evidence based writing assignments. The course exposes students to a variety of organizational members and leaders. As students apply theory to organizational practices in healthcare they will identify positive strategies for influencing healthcare microsystems.

NRSRG 625 POPULATION HEALTH STRATEGIES (3) Focus is on the assessment of communities and people groups utilizing epidemiological principles to define, design, and implement culturally competent healthcare. Care of people groups that are determined to be at risk, community care following a disaster, and environmental factors upon community health are also discussed.

NRSRG 690 CLINICAL NURSE LEADER PRACTICUM I (4) Prerequisites: NRSRG 610, NRSRG 625. This course focuses on the assessment of communities and people groups utilizing epidemiological principles to define, design, and implement culturally competent healthcare. Care of people groups that are determined to be at risk, community care following a disaster, and environmental factors upon community health are also discussed.

NRSRG 692 CLINICAL NURSE LEADER PRACTICUM II—IMMERSION EXPERIENCE (6) Prerequisites: All required graduate nursing courses. This course focuses on the integration of clinical nursing concepts with leadership and management concepts as they apply to practice as a clinical nurse leader (CNL) in a healthcare facility. The student will implement an evidence-based nursing practice project in the healthcare setting and evaluate the outcomes. The student will also assume the role of CNL in the setting and practice as such under a mentor.

ORTHOPAEDIC PHYSICAL THERAPY RESIDENCY COURSES

OPT 951 ADVANCED CLINICAL REASONING AND EVIDENCE BASED PRACTICE (3) This course will focus on concepts and development of clinical reasoning skills in conjunction with advanced, in-depth study of the principles, concepts, and pragmatic and practical applications of evidence-based physical therapy practice, including appraisal of the literature. Discussion will focus on evidence-based clinical reasoning and the development of advanced clinical skills and expertise, including diagnostic and narrative reasoning and procedural and communicative management. Residents/students will appraise the literature related to the advanced management of patients with orthopaedic disorders of the lower extremity.

OPT 952 APPLIED PRINCIPLES OF TEACHING AND LEARNING (3) This course will focus on the development of fundamental skills and knowledge to prepare the resident/student to participate in education in a variety of settings. The student will be introduced to basic and foundational pedagogical and educational principles. Residents/students will incorporate concurrent instructional experiences as laboratory instructors, tutors, in addition to preparing for credentialing as a clinical instructor. Furthermore, residents/students will appraise and present a summary of the literature related to the advanced management of patients with orthopaedic disorders of the lower extremity.

OPT 953 ADVANCED CLINICAL INQUIRY (3) This course will focus on the development of fundamental skills and knowledge to prepare the resident/student to conduct original research, with emphases on research design, statistics/measurement, and ethics. Residents/students will develop the abilities to: plan and execute common research designs to answer common research questions; select appropriate measures and statistical tests and analyze the results of common statistical measures; and identify and implement strategies for human subjects' protection during participation in original research. Residents/students will complete a Capstone project involving data collection and analysis in the form of a case report/series, non-experimental or experimental design.

OPT 961 ADVANCED MANAGEMENT OF ORTHOPAEDIC DISORDERS OF THE UPPER EXTREMITY (3) This problem-based and patient-centered course will focus on advanced, in-depth study of the management of patients with orthopaedic disorders of the lower extremity. The emphasis will be on the examination, evaluation, diagnosis, prognosis, intervention, and outcomes. Diagnostic imaging,