

## GRADUATE COURSE DESCRIPTIONS

### **BIO-601 Cellular Biology 4 credits**

This graduate course is offered to students enrolled in the Master of Science Program in Education is a required course for those students majoring in Secondary Education with a Biology emphasis. This course provides students the opportunity to enhance their understanding of the cell in both prokaryotic and eukaryotic systems. Cell processes such as transport and cell signaling will be addressed as well as the mechanisms of cell replication.

### **BIO-602 Immunology 4 credits**

This graduate course is offered to students enrolled in the Master of Science Program in Education is a required course for those students majoring in Secondary Education with a Biology emphasis. This course provides students the opportunity to enhance their understanding of the immune systems, the immune response, hypersensitivity, autoimmunity, immune suppression, and immune deficiency.

### **BIO-603 Microbial Ecology 4 credits**

This graduate course offered to students enrolled in the Master of Science Program in Education is a required course for those students majoring in Secondary Education with a Biology emphasis. The purpose of this course is to provide the student with a good understanding of the relationships that exist between microorganisms interact with each other, and with plant and animal populations. Also, we will cover the physiological ecology of these organisms and their roles in biogeochemical cycling. The final portion of the course will be devoted to biotechnological aspects of microbial ecology.

### **BIO-604 Molecular Genetics 4 credits**

This graduate course offered to students enrolled in the Master of Science Program in Education is a required course for those students majoring in Secondary Education with a Biology emphasis. This course provides students the opportunity to enhance their understanding of the chemical nature of the gene. Bacterial, viral and eukaryotic systems will be examined with respect to their role in determining the mechanisms of gene expression. The applications of recombinant DNA technology in elucidating the molecular causes of human diseases will be addressed.

### **CHE-601 Advanced Analytical Chemistry 3 credits**

This course is designed to teach students Acid base complexation, redox and solubility equilibria; complexes in analytical chemistry; optical spectroscopy; absorption spectroscopy; luminescence; chromatography; electrochemistry. Each student is required to assist in the lab ( see guidelines above) for the undergraduate course Quantitative Analysis.

### **CHE-602 Advanced Organic Chemistry 3 credits**

This course is designed to teach students stereochemistry, reaction mechanisms, molecular rearrangements, conformational analysis, synthesis of complex organic molecules, free- radical polymers, heterocyclic compounds, organometallics. Each student is required to assist in the lab (see guidelines above) for the undergraduate course Organic Chemistry.

**CHE-603 Advanced Inorganic Chemistry 3 credits**

This course is designed to survey selected areas of inorganic chemistry including metal carbonyls, metal-metal bonds and clusters, hydrides, organometallics, homogeneous catalysis, and bio-inorganic chemistry. Each student is required to assist in the lab ( see guidelines above) for the undergraduate course Inorganic Chemistry.

**CHE-604 Advanced Biochemistry 3 credits**

This course is designed to teach students detailed lessons on enzyme mechanisms, metabolism and expression and transmission of genetic information. Each student is required to assist in the lab ( see guidelines above) for the undergraduate course Biochemistry.

**CHE-605 Chemical Thermodynamics 3 credits**

This course is designed to teach students the underlying dynamic and statistical nature of thermodynamics with focus mainly on equilibrium thermodynamics. Each student is required to assist in the design, preparation and implementation of at least two undergraduate laboratory experiments for the undergraduate course Physical Chemistry 1.

**EDU-600 Contemporary Issues in Education 3 credits**

This course is designed to provide students with an understanding of contemporary issues in education from a philosophical, political, economical, and social perspective. Current reforms and their implications for the improvement for education on the local, state and federal levels will be examined. Students will investigate and evaluate reform issues as they relate to the restructuring of American schools.

**EDU-601 Theoretical Foundations of Reading Instruction 3 credits**

This course is designed to provide teachers with an understanding of the basis of the reading process. Emphasis will be placed on the significant research, which establishes the theoretical foundation for reading. Classroom discussion will include an analysis of the research and its practical application to the classroom.

**EDU-602 Human Growth and Development 3 credits**

This course provides a broad overview of the field of human development. It covers the entire range of human life from conception through death. Specifically, students will be introduced to the lifespan that encompasses the prenatal period, infancy and toddler hood, the preschool years, middle childhood, adolescence, early and middle adulthood, and later adulthood. Within these periods, discussions will focus upon physical, cognitive, and social-personality development. Theories, research and applications will examine both the traditional areas of the discipline as well as more recent innovations.

**EDU-603 Reading & Language Disabilities 3 credits**

This course is designed to provide teachers with an understanding of the basis of the reading process. Emphasis will be placed on the significant research which establishes the theoretical foundation for reading.

**EDU-604 Educational Assessment & Evaluation 3 credits**

This is an introductory course designed to provide students with an understanding of the role of assessment and evaluation as utilized in educational settings. Emphasis will be placed on

assessment of students, teachers, instructional practices, and schools. Opportunities for reviewing and interpreting evaluation tools and data will be provided. The social, political, and cultural perspectives of assessment and changing paradigms will be among the topics investigated.

### **EDU-605 Content Reading in the Middle and Secondary School 3 credits**

This course is designed to develop students' understandings of appropriate pedagogy for integrating reading, writing, and study strategies into content area instruction. Emphasis will be placed on blending theoretical perspectives with practical applications.

### **EDU-607 Literature & Literacy 3 credits**

This course will offer an exploration of literature for children and adolescents and the development of literacy through literature. The course will focus on theoretical and practical aspects of the study of literature. Students will be given opportunities to develop instructional strategies and techniques necessary for the integration of literature into the K-12 school curriculum.

### **EDU-609 Planning and Organizing Reading Programs 3 credits**

This course is designed to provide opportunities for students to acquire knowledge of principles, methods, and guidelines for organizing reading programs, which effectively meet the needs of individual learners. Emphasis is given to various innovative organizational practices used in developmental, corrective, and remedial programs today as well as the role of the reading specialist in effecting exemplary programs.

### **EDU-610 Practicum: Remedial, Corrective And Developmental Reading 3 credits**

This field course designed to develop graduate students' practical facilities with providing effective instruction for students who are experiencing severe to moderate difficulties in reading/language, and for students in regular developmental programs. The central focus of the course will be in-the-field experiences in which each graduate student will work weekly with the student whom s/he diagnosed during ED 603, and will conduct a developmental lesson with a group of students. This will be combined with case staffing at the University which will consist of problem-solving and developing strategies for use with a range of reading/language strengths and needs. The course will provide a venue for applying learning's from the full range of courses taken in the Lincoln University Graduate Reading Program.

### **EDU-611 Integrating the Reading/Language Arts Curriculum 3 credits**

This course is designed for the Master of Science graduate student/teacher. The course surveys the critical issues of theory and practice related to the integration of reading and language arts. We will draw on the varied perspectives from the research literature and from our own experiences as learners and teachers. We will examine our own assumptions about learning and language in order to generate questions for observation, discussion and research.

### **EDU-613 Research Seminar in Reading 3 credits**

This course is designed to facilitate the development of the Masters Thesis. It will enable students to read and react critically to research in the field of reading/writing. Students will analyze educational research as they investigate their original research. Emphasis will be placed on the analysis of data and conclusions. A master's thesis is the final requirement.

**EDU-615 Adult Reading 3 credits**

This course is designed to acquaint students with theory and practice related to adult literacy. It will explore adult learning theory, the socio-cultural situation of adult literacy, and programs designed to meet the expressed needs of the adult learner. Specifically, the course will familiarize reading specialists with the operation of programs traditionally called “functional”, with intergenerational literacy programs in the schools, with GED preparation classes, and with developmental reading courses at the two- and four-year college level.

**EDU-617 Advanced Topics in Reading 3 credits**

This course is designed to facilitate advanced exploration of topics related to reading and research in reading and research in reading, viewing them in the broader context of school operation and reform. In addition, students will be guided in the initial stages of development of their research for their master's thesis.

**EDU-618 Infant and Child Development 3 credits**

This course will use an open, integrated approach to early childhood education, with comment based upon research and theory as well as the most current position papers in the field. The course is comprehensive in nature, covering theories of development as well as stages of development and explaining infant and toddler behavior as the child develops its physical, social, emotional, cognitive, and creative selves. The primary focus of the course is "Birth to Twelve Months", the secondary focus is aged twelve months through three years of age.

**EDU-619 Early Childhood: The Preschool Child 3 credits**

This course is designed to help students develop an understanding of the behavior of the preschool child. It will focus on cognitive development, theories of language acquisition, and the relationship between language acquisition and mental development. Attention will also be given to the practical environment dimensions of the day care center as they affect the learning of the preschool child. Opportunities for observation of preschool children will be provided.

**EDU-621 Creative Arts in the Elementary Classroom 3 credits**

This course will acquaint students with the basic philosophy concerning art, music, and movement in the elementary classroom and the principles of creative teaching as they relate to these areas. Students will be introduced to various media and techniques in art, and the function of music and movement in the regular classroom. The creative arts will be presented as vehicles for inclusion: for revealing the cultural heritage's of all of the world's peoples, and for experiencing curricula in ways which provide access to those of diverse learning styles and backgrounds.

**EDU-623 Methods in Science and Social Studies 3 credits**

This course is designed to provide a practical, functional approach to the design and integration of the content areas of social studies and science in the elementary school. Major emphasis include: (1) knowledge of basic social studies and science concepts and processes, (2) systematic instructional design of lessons and units, (3) questioning, thinking and problem-solving, (4) inclusion of literature in the study of science and social studies, (5) teaching/learning strategies, and (6) evaluation techniques. The application of technology is an integral aspect of the course.

**EDU-625 Methods: Elementary School Mathematics 3 credits**

This course is designed to provide an examination of mathematics in the elementary school. Students will be given opportunities to develop instructional strategies and techniques and will use them in an elementary school classroom. This course is one of the final methods before student teaching. It is important, therefore, that the student demonstrate mastery of the theory and skills through class work, tests, assignments and fieldwork. In order to student teach, the student will need a "C" or better in this course (all other education courses). The student will also need to demonstrate mastery of elementary school mathematics skills through testing (pre and post). Additionally, the course for instruction examines, applies, and integrate technology.

**EDU-666 Middle School Child 3 credits**

This course provides an in-depth study of the physical, cognitive, emotional, and social growth of the adolescent. It reviews the implications that the adolescent developmental stages have on student success in the middle school environment and strategies for increasing the effectiveness of teaching and learning in middle school classrooms. Students will gain an understanding and familiarity with the current educational trends and issues affecting middle school education today.

**EDU-725 Thesis Preparation 3 credits**

This course is designed to provide students skills and knowledge useful for the integration of theory and practice utilizing basic and applied research for pragmatic problem solving. Students will select from one of three options for completing their requirements for the Master's degree: 1) master's thesis, 2) project proposal, and 3) comprehensive exam. A written and oral presentation of the thesis proposal, or comprehensive examination plan. Students opting for the comprehensive examination will undergo an intensive battery of essay questions designed around their content knowledge of their area of specialization. All students must prepare a thesis plan/project which provides a synopsis of their proposed option and justification for the choice given their long range professional goals. All plans must be approved by the instructor.

**EDU-726 Thesis Seminar 3 credits**

As part of the Master of Science in Administration Program (MSA), the students are required to write a thesis. The thesis for the business concentration reflects the critical review and analysis of the major theoretical frameworks through which economics and business administration have evolved; the linkages between the above frameworks and current ideas and practices in economics and business administration; and the identification and conceptualization of economics and business problems into a researchable hypothesis. The thesis will reflect the students' understanding of how to synthesize research data and other information into an effective written document.

**EDU-756 Principalship 3 credits**

This course will explore the Principalship using specific points of view such as reflective proactive practice or instructional leadership. Students will be provided with a clear organizational framework for school leadership. One that will enable principals to repeatedly adapt themselves to new and unique setting with public school environments. They will explore strategies for providing systematic ways in which the novice can structure a professional social-interaction perspectives with special emphasis on work group development, ongoing instructional leadership, diagnostic methods, and the reflective approach to becoming a principle.

**EDU-757 Instructional Leadership 3 credits**

This course is designed to help prospective principals and supervisors increase their knowledge and skills in the primary area of curriculum instruction. The course presents concepts and research findings that when understood can improve the student's problem solving and leadership effectiveness. Emphasis is placed on the student's problem solving and leadership effectiveness. Emphasis is placed on the development skills associated with instruction, pedagogy and evaluation. The various modes of strategic planning for instruction, feedback and assessment are covered. The problems of change will be discussed along with how to run an effective school. School-based management, applications of total quality management, and structuring staff evaluation and supervision will also be discussed.

**EDU-758 School Community Relations 3 credits**

This course will explore innovative approaches to school and community relations. It will examine strategies for increasing effective interactions between diverse segments of public school communities. Focus will be placed on the development of school governance systems, which are sensitive and responsive to the needs of the community. Students will examine the role of the school administrator as a community organizer, liaison to the business community, communicator with various publics and educational leaders in the community.

**EDU-759 & EDU-760 Elementary & Secondary Principals Internship I and II 3 credits**

This course is a two-part sequence whereby students will enroll and complete EDU 759 and enroll and complete EDU 760 the following semester for a total of 6 credit hours. The purpose of this internship is to provide elementary and secondary principle candidates two semesters of experiential learning activities. Prove them with on-the-job methods and practices of successful school leadership. Candidates will be able to demonstrate integrated experiential, empirical and theoretical knowledge of school administration and leadership.

**EDU-761 Internship in School Supervision 3 credits**

The internship in School Supervision is a supervised, professional, on-site field experience in a supervisory setting. During the field experience, a full-time practicum in schools, the candidate for Supervisory I Certificate will be able to assume the role of the supervisor in practice under the guidance of well-qualified school personnel actively engaged in supervision. University faculty will regularly observe the intern site to confer, to counsel, and to evaluate as the candidate relates theory to practice.

**HUS-611 Ethics for Human Services: Philosophical Concepts & Ethical Dilemmas 2 credits**

The course focuses on the theoretical and historical background for ethics for human services with primary attention given to philosophical traditions. Approaches to values are distinguished, such as philosophical, psychological and interdisciplinary.

**HUS-612 Psychology of Life Span Human Development 2 credits**

Psychology for human services focuses upon general psychological theories as they relate to the field as well as an awareness of the prerequisite skills a child must have already mastered in order to successfully learn and apply a new skill.

**HUS-613 Introduction to Applied Sociology & General Systems Theory 2 credits**

The systems that humans use in personal and interpersonal functioning are identified and

surveyed by use of General Systems Theory (GST). Emphasis is placed on General Systems Theory concepts as tools and upon their usefulness in examining both the interface of self and other systems using GST of other sociological theories and processes.

**HUS-614 Communications Skills for the Human Services Practitioner 2 credits**

This course focuses on the writing process and writing skill development through student participation in peer teaching groups, lecture/discussions, and a variety of writing exercises. Students will identify, analyze and practice the basic writing skills necessary for graduate work and the human services profession. Students will also be introduced to the philosophy and terminology of social research.

**HUS-615 Introduction to Theory & Practice Integration 2 credits**

Students will meet in small groups at a central field location to review theory from Saturday classes, integrate this learning, and apply it to personal and professional experience. The student will also work on a Practice Application Project.

**HUS-616 Theory & Practice Application: Documenting the HS Experience 2 credits**

As a Practice Application project for this competency, the student will develop a portfolio which includes a work history, assessment of human services skills, and documentation of skills and experiences cited. The student will also complete a learning plan, based on this portfolio outlining the student's proposed field projects for the remainder of the graduate program.

**HUS-621 Ethical Standards & Professional Obligations for Counselors/Helpers 2 credits**

The course focuses on values in the social and economic context of helping relations with clients, obligations to clients, and obligations to the profession. It also examines codes of ethics for human services.

**HUS-622 Theories of Counseling & Other Helping Relationships 2 credits**

The course focuses on theoretical perspectives of helping while expanding the definition of helping relative to a wide variety of human interaction situations. Counseling and teaching as preferred modes of helping will be discussed. Variables related to helping will be examined. The emphasis is on understanding the act of helping from the perspective of self and others.

**HUS-623 Social Systems Analysis of Agencies and Society 2 credits**

This seminar will focus on the systems (groups) from primary to social groups and how their value structures, processes, values and functions impact upon, and are impacted upon by, human services helping systems. Special groups and selected unresolved issues relating to culture, race, ethnic groups, social stratification, religion, education and sex will be discussed. These issues will be discussed from the systems' perspective, viewing the inter-relatedness of human services organizations and groups.

**HUS-624 Helping and Problem-Solving Skills 2 credits**

This seminar introduces students to helping skills relevant to the helping process. Through lecture, discussion and intensive supervised practice, students will develop skills in problem-solving, interpersonal communication, and documentation.

**HUS-625 Theory & Practice Integration: Helping Relationships 2 credits**

Students will be provided with an opportunity to integrate concepts learned in Saturday classes

with experiences encountered in the student's occupational environments. Problem-solving and human services will be stressed, using academic and human services theory to resolve conflicts in the class and in the field. This class will also help students carry out the Practice Application project by presenting a forum in which they share progress and problems with the Practice Application projects.

**HUS-626 Practice Application: Helping Relationships in the Organization 2 credits**

As a Practice Application project for this competency, the student will develop a healthy relationship with an individual or a group, such as a client group, a group of fellow employees, supervisor-supervisee, and student-teacher relationships. Such relationships should be based on the student's projects in the learning plan submitted in Competency Unit I. Projects require approval of Field Instructors. The focus of the Practice Application will be to apply appropriate helping relations skills, theories, and concepts to the achievement of the project's helping objectives.

**HUS-631 Ethical Issues in Groups 1 credit**

The course considers the ethical questions of social groups and small groups. Social groups are examined in terms of issues of racism, sexism, classism, etc. Models are viewed from an ethical perspective, including, for example, rights of minority members, and cooperation.

**HUS-632 Dynamics of Face-to-Face Groups 1 credit**

The course focuses on theories of group dynamics in face-to-face groups with respect to styles of leadership, facilitation of group processes, and conflict resolution.

**HUS-633 Communication & Social Systems Analysis of Group Interaction 1 credit**

This course will provide students with a theoretical and applied understanding of the social forces and systems that operate within and surround a variety of group activities. Conceptual tools from systems theory, communications sciences, social anthropology, and sociology will be employed to both explicate and execute various behavioral options within the different group settings. Emphasis will be placed upon group interaction, intergroup relations, and linkage between groups and larger social systems.

**HUS-634 Skills in Problem Solving, Research Methods & Program Planning I 1 credit**

This competency unit will introduce the student to basic human services and social science research terminology and methods. The class will focus on providing useful vocabulary and critical awareness of the processes of social research including problem definition, literature review, assessment of needs, project planning and implementation, and evaluation.

**HUS-635 Theory and Practice Integration: Groups 1 credit**

The field seminar focuses on students' work and professional experiences from the perspective of theories presented in the other dimensions in the Competency Unit: Values, Self and Others, and Systems. The field seminar will serve as a workshop in which students will practice group skills by serving as participants and observers in their field groups.

**HUS-636 Practice Application: Group Analysis and Facilitation 1 credit**

The student will carry out a project with a group external to the program. The students will become either group leaders or members. Students will meet in small groups at a central field

location to review theory from Saturday classes, integrate this learning, and apply it to professional and personal experience. The student will also work on a Practice Application project.

**HUS-641 Ethical Principles of Social Justice in Social Service Agencies 2 credits**

With a focus on the community, the course examines the nature of social and economic justice, including a study of theories of justice. Along with the politics of human services, the course includes an ethical critique of models of community organization.

**HUS-642 Psychology of Community & Organizational Intervention 2 credits**

This course will focus on models, strategies, and roles required in working in the community and on developing new programs with input from the community.

**HUS-643 Social Systems Analysis of Organizational Planning & Management 2 credits**

The course will examine various aspects of organizational management and the extension of managerial intelligence to the organizations in the surrounding community and other salient social systems. Concepts and tools will be drawn from systems theory, game theory, marketing management, decision and information science, political science and organizational analysis.

**HUS-644 Skills in Problem Solving, Research Methods & Program Planning II 2 credits**

This, the second course in the final skills sequence, focuses on the analysis of data; historical, experimental and descriptive. Final refinement of the needs assessment instrument will take place. Students will carry out a needs assessment project based on a felt need. Findings will be analyzed and options, strategies and recommendations for carrying out a change project will be produced. Students will begin the change project during this competency.

**HUS-645 Theory and Practice Integration: Social Change I 2 credits**

This course will provide the students with the opportunity to formalize and synthesize planning and management concepts and to examine cognitive material in the light of practical experience. After receiving feedback from peers and from the field instructor, students will work through the various phases of project management from problem definition to program implementation.

**HUS-646 Practice Application: Thesis I 2 credits**

Students will combine the material from Values, Self and Others, Systems and Skills courses to produce a written Practice Application which will reflect the beginning steps of their project implementation working from pre-assessment activities up to the project implementation.

**HUS-651 Ethics of Social Intervention: Planned Change 2 credits**

The course focuses on the ethics of membership and management in organizations, as well as the organization's and agent's responsibilities and rights regarding social change in communities. Some attention is given to historical aspects of social change.

**HUS-652 Psychology of Planned Change in Organizations & Communities 2 credits**

This course focuses on theories, strategies, models and roles for effecting planned change. Materials from previous competency units will be integrated in the development of overall conception of individual, organizational and social change strategies.

**HUS-653 Social Systems Analysis of Organizational & Community Change 2 credits**

This course will focus on the various properties and implications of planned change. Change and innovation will be fully explored within both organizations and larger social systems. Material from political science, economics, communications, marketing, systems theory, organizational development, and conflict resolution will be employed.

**HUS-654 Methods and Application in Program Evaluation 2 credits**

The third of three courses in the final project skills sequence, this course will focus on social change in organizational development, and is designed to synthesize and put into practice all materials covered in the previous four competency units. In addition, it refines evaluation skills as the final project is developed. The major task will be to carry out and write the research and evaluation component of the change project. Students will work from a basic evaluation question to collect supporting data and proceed through the final project.

**HUS-655 Theory and Practice Integration: Social Change II 2 credits**

The field integration seminar focuses on students' work and professional experience integration.

**HUS-656 Practice Application: Thesis II 2 credits**

The final Practice Application Seminar focuses on preparing the student to complete the final change project. Emphasis is placed on the final steps of the change project, including evaluations and recommendations.

**HUS-662 Clinical Assessment and Testing 3 credits**

This course will examine a variety of assessment and testing methods, interviewing procedures, and observational techniques associated with the formulation of diagnostic impressions and treatment plans in human service settings. Emphasis will be given to multi-modal and eclectic appraisals of cognitive, affective, social, vocational, interests/aptitude, achievement, intellectual and personality aspects of functioning.

Prerequisite: Master's degree in Human Services, Psychology, Counseling, Sociology or related disciplines.

**HUS-672 Psychopathology and Diagnosis 3 credits**

This course will provide a comprehensive review of current models, theories and principles pertinent to the identification, description and delineation of major mental disorders. Concepts and terminology from the DSM-IV will be detailed and applied to salient clinical concerns and situations arising in human service agencies. Cases and illustrations will be drawn from participants' clinical experiences. Special emphasis will be placed upon the factors, reasoning, judgments and extrapolations that underlie the process of clinical diagnosis and prognosis.

Prerequisite: Master's degree in Human Services, Psychology, Counseling, Sociology or related disciplines.

**MAT-621 & 622 Real Analysis I and II 3 credits each**

These are courses in the theory of Lebesgue Measure and integration, Banach and Hilbert spaces, product measures and product integration.

Prerequisite: MAT 221 and MAT 301 or MAT 325

**MAT-623 & 624 Complex Variables I and II 3 credits each**

These courses cover the theory and applications of functions of a complex variable, topics include analytic functions, contour integration, harmonic functions, conformal mappings, analytic continuation and Riemann surfaces.

Prerequisite: MAT 221 and MAT 301 or MAT 325.

**MAT-625 & 626 Abstract Algebra I and II 3 credits each**

These courses cover basic theory of groups, fields, rings and modules. Advanced topics include Sylow theorems, Galois theory and category theory.

Prerequisite: MAT 311 and MAT 301 or equivalent

**MAT-627 Topology 3 credits**

This course is a study of topological concepts including metric and topological spaces, continuity, connectedness, completeness, compactness and product spaces.

Prerequisite: MAT 221 and MAT 301 or equivalent

**MAT-629 Foundations of Mathematics 3 credits**

These courses are a study of basic concepts and ideas in the philosophy and the foundations of the mathematical sciences, with topics varying with the needs of the students.

Prerequisite: MAT 221 and MAT 301 or equivalent.

**MAT-631 Theory of Sets 3 credits**

This is a compact course including topics such as descriptive theory of sets and functions, cartesian products, relations, counting, transfinite arithmetic, well ordered sets, cardinal numbers, equivalence of the Axiom of choice, well-ordering theorem, and Zorn's lemma.

Prerequisite: MAT 301 or equivalent.

**MAT-641 & 642 Applied Mathematics I and II 3 credits each**

This course is a study of various techniques of applied mathematics including Green's function, string vibration, integral and differential operators in Hilbert space, spectral analysis and the Laplace transform.

Prerequisite: MAT 222 and MAT 301.

**MAT-675 & 676 Thesis Seminar I and II 3 credits each**

These courses are a study of a research topic leading to a graduate Master's thesis.

**MSA-701 Research Methodology 3 credits**

This course is designed to introduce the student to social research methods. Emphasis will be placed on the processes of research and evaluation used by the social scientist/educator to examine areas of human behavior, to identify educational needs of targeted populations, to develop and assess education intervention procedures and programs and to recommend areas for policy focus. The students will examine the role of the researcher; the relationship between theory and data; conceptualization of research questions, hypotheses, research designs, methodological issues in social research; sampling; specification and measurement of outcomes; evaluation of program elements and entire programs; methods of social science and behavioral research; and the practical limitations and ethical issues related to research. Overall, the course will provide the student with introductory skills required for contributing to knowledge in

education and human services, becoming better social and behavioral scientists and critical consumers of research.

### **MSA-704 Management Information Systems 3 credits**

This course will provide students with knowledge of the technology available to build systems and will show how that technology is used to create a systems architecture that meets the information processing needs of a business. It will also explain the systems analysis and design process and explain how the designer and the user interact to develop a successful system.

### **MSA-708 Organizational Behavior 3 credits**

This course provides an experiential understanding of behavioral science theories, concepts and research findings that are directed towards effectively influencing human behavior within the organization for the purpose of implementing organizational development and change strategies. It will examine the behavior of individuals within groups, organizations and complex systems, professional ethics, management of diversity, conflict, globalization, leadership, power, motivation, communications and team building.

### **MSA-710 Human Resource Management 3 credits**

The purpose of this course is to teach students the basic concepts of management. The emphasis will be on human resource management in the highly competitive global environment. We will address current issues in management and discuss case studies. The current legal and political environment will be the background for studying governmental influences on organizations.

### **MSA-740 Special Topics in Human Resource Management 3 credits**

This course is designed to facilitate advanced exploration of topics related to administration in the school community viewing them in the broader context of school operation and school reform.

### **MSA-744 Executive Accounting and Finance 3 credits**

This course is designed to provide the students with an understanding of the fundamental concepts and techniques in accounting and finance that can be used to extract usable information for financial decision making. The overall goal is to develop students' practical skills in analyzing and interpreting financial data, basic budgeting concepts, financial planning and control and evaluating long term investment opportunities necessary for maximizing corporate or organizational value.

### **MSA-746 Strategic Management 3 credits**

This course will teach students the concepts and techniques of strategic management, i.e. developing a vision and a mission, setting objectives, crafting a strategy, strategy implementation and execution, and finally evaluating performance, reviewing the situation and initiating corrective adjustments. We will discuss why strategic management is an ongoing process, who are the strategy managers, and the benefits of a "strategic approach" to managing.

### **MSA-750 Financial Management I 3 credits**

This course is designed to introduce the student to a broad range of financial management concepts. Students will learn the analytical skills necessary to make good financial decisions. The emphasis is on decision-making. Interrelated concepts from investment financial and

banking are introduced. This course familiarizes the students with the latest thinking in corporate finance.

### **MSA-751 Financial Management II 3 credits**

This course offers managers in all types of organizations who rely heavily on managerial information the tools for decision-making, planning, and control. The goal of this course is to acquaint students of management with the fundamentals of managerial accounting. The emphasis throughout the course is on using accounting information in managing an organization. This course includes frequent descriptions of the actual managerial practices of real-world organizations.

### **MSA-752 Strategic Marketing I 3 credits**

This course offers an introduction to the concept, language and tools foundational to the process of strategic thinking. Integration of the traditional disciplines of marketing, economics and strategic planning will be facilitated through a dynamic, real world marketing computer simulation. Important to this study is environmental, political, and socioeconomic factors and the contribution each make to the process of strategic decision-making in an increasingly global marketplace.

### **MSA-753 Strategic Marketing II 3 credits**

This course offers an introduction to the concepts, language and tools foundational to the process of strategic thinking. Integration of the traditional disciplines of marketing, economics and strategic planning will be facilitated through a dynamic, real world marketing computer simulation.

### **MSA-761 Employee and Labor Relations 3 credits**

This course examines employee relationships with management in both a union and non-union environment. It addresses issues such as policy formulation, complaint systems, employee rights, methodology of performance appraisals, employee morale and motivation and factors affecting employee health, safety, and security. It includes coverage of laws and regulations regarding labor-management relationships, administration of labor contracts, mediation and arbitration processes, collective bargaining, strategies of negotiation, unfair labor practices, and the management of organization-union relations.

### **MSA-762 Compensation Analysis and Benefits Planning 3 credits**

This course examines the legal and regulatory factors affecting compensation and benefit administration. It reviews compensation philosophies, economic factors affecting pay plans as well as the type and characteristics of specific compensation and benefit programs.

### **MSA-763 Organizational Staffing 3 credits**

This course examines legal, regulatory and organizational factors affecting staff selections and development. It includes all applicable federal laws and practices as well as employee orientation, selection, recruitment, promotion, training and career development.

### **PHY-611 Mathematical Physics 3 credits**

A very intensive course covering the Mathematical Methods that a physical scientist must know:

vector analysis; Tensor Analysis; Curvilinear Coordinate Special functions; The Calculus of residues; Contour integrate among other topics will be covered in all rigor.

### **PHY-612 Experimental Physics 3 credits**

This course is designed to expose advanced students to a selection of experiments on the quantitative evaluation of physical phenomena. Laboratory lectures and discussion will focus on the general theory and techniques used to perform and interpret experiment.

### **PHY-621 Classical Mechanics 3 credits**

This is an intense course covering advanced mechanics. The following topics will be treated in detail: The Calculus of variations variational approaches lagrangian dynamics; the Hamiltonian formulation; the Central Force problem, Rutherford scattering; Calculation of orbits and trajectories; Poisson Brackets; The Classical Principle of Relativity Rules and Regulations of Course.

### **PHY-622 Electromagnetic Theory 3 credits**

An intense course on classical Electromagnetic Theory including Maxwell's Equations; Electro Statics; Magnetostatics; Applications of Maxwell's Equations to Electromagnetic waves; waves guides, Lorentz covariance of Maxwell's equations, electric & magnetic fields in matter, the classical theory of fields.

### **PHY-631 Quantum Mechanics 3 credits**

An intense course in both the foundations and applications of modern Quantum Mechanics including the following topics: Breakdown of Classical Physics; the Old Quantum Theory; Schrodinger's Equation; the Bound State Problem vis WKB; Central Forces; Angular Momentum; the Hydrogen Atom and Perturbation Theory.

### **PHY-632 Solid State Theory 3 credits**

An intense survey course on Solid State Physics including; Solids, Metals, group theory; phonons, scalar magnons; Field Theory as applied to elementary excitations in solids; Debye and Einstein theory of specific Heat. Other advanced topics such as; Ising Model, Field theory on a lattice, Criticality, order Parameters and phase transitions will be treated as time permits.

### **SOC-49A Basic Writing in the Human Services 4 credits**

This course provides practice in the fundamentals of effective writing. Working in a computer laboratory, students will strengthen their grammar and organizational skills, with emphasis placed on mastering the conventions of standard written English and editing for clarity and correctness.

### **SOC-49B Advanced Writing In Human Services 4 credits**

Building on the foundation of SOC 49A, this course introduces students to increasingly more sophisticated writing situations. Working in a computer laboratory, students will discuss, analyze and practice a variety of advanced academic and job-related writing tasks, with emphasis on refining grammar skills and developing a professional writing style.

### **SOC-501 Communication Applications in Human Services 2 credits**

This course presents an exploration of the fundamentals of effective communication in academic

and human service environments. Students will analyze, discuss, and produce a variety of writing tasks, learning to work effectively through all stages of the writing process.

**SOC-502 Critical Thinking in the Social Sciences 2 credits**

This course gives instruction in recognizing and experiencing the cognitive tasks essential to professional development. Using reading selections from psychology, sociology and ethics, students will work through the steps of Bloom's taxonomy: knowing, comprehending, applying, analyzing, synthesizing, and evaluating data.

**SOC-503 Technical Applications in Human Service Communication 4 credits**

This class provides computer-assisted and teacher-directed writing practice. In a laboratory setting, students will review and refine their grammar and organizational skills, while learning word processing and multi-media applications as tools for producing effective professional writing.

**SOC-50A Basic Critical Thinking Skills for the Human Service Practitioner 2 credits**

This basic course introduces the interrelated processes involved in critical thinking, such as asking the right questions, identifying and challenging assumptions, formulating hypotheses, and exploring alternative ways of viewing and solving problems. Students will demonstrate understanding of these processes through short oral and written assignments.

**SOC-50B Advanced Critical Thinking Skills for the Human Service Practitioner 2 credits**

Building on the foundation of SOC50A, this course will help students refine their critical thinking skills through reading and analyzing social science texts. Emphasis will be placed on the production of clearly written, carefully reasoned, and well supported arguments.