School of Health Professions

Located on the KU Medical Center campus in Kansas City, Kan., the School of Health Professions (http://healthprofessions.kumc.edu) offers more than 25 academic programs, from undergraduate and graduate degrees to certificate programs, that prepare students for careers in health care, research and leadership. Admission and degree requirements vary by program.

Clinical Laboratory Sciences (http://catalog.ku.edu/health-professions/clinical-laboratory-sciences)

Diagnostic Cardiac Sonography (http://catalog.ku.edu/health-professions/diagnostic-cardiac-sonography)

Diagnostic Ultrasound Technology (General and Vascular) (http://catalog.ku.edu/health-professions/diagnostic-ultrasound-technology)

Dietetics and Nutrition (http://catalog.ku.edu/health-professions/dietetics-nutrition)

Clinical Doctor of Speech-Language Pathology (http://catalog.ku.edu/health-professions/audiology-speech-language-pathology/slpd)

Doctor of Audiology (http://catalog.ku.edu/health-professions/audiology-speech-language-pathology/aud)

Doctor of Philosophy in Speech-Language Pathology or Audiology (http://catalog.ku.edu/health-professions/audiology-speech-language-pathology/phd)

Master of Arts in Speech-Language Pathology (http://catalog.ku.edu/health-professions/clinical-laboratory-sciences/speech-language-hearing/ma)

Bachelor of Science in Clinical Laboratory Science (http://catalog.ku.edu/health-professions/clinical-laboratory-sciences/phd)

Certificate in Diagnostic Cardiac Sonography (http://catalog.ku.edu/health-professions/diagnostic-cardiac-sonography/certificate)

Certificate in Diagnostic Ultrasound Technology (General and Vascular) (http://catalog.ku.edu/health-professions/diagnostic-ultrasound-technology/certificate)

Dietetic Internship Graduate Certificate (http://catalog.ku.edu/health-professions/dietetics-nutrition/certificate)

Dietetics and Integrative Medicine Graduate Certificate (http://catalog.ku.edu/health-professions/dietetics-nutrition/integrative-medicine/certificate)

Master of Science in Dietetics and Nutrition (http://catalog.ku.edu/health-professions/dietetics-nutrition/ms)

Doctor of Philosophy in Medical Nutrition Science (http://catalog.ku.edu/health-professions/dietetics-nutrition/phd)

Health Information Management (http://catalog.ku.edu/health-professions/health-information-management)

Molecular Biotechnology (http://catalog.ku.edu/health-professions/molecular-biotechnology)

Nuclear Medicine Technology (http://catalog.ku.edu/health-professions/nuclear-medicine-technology)

Nurse Anesthesia (http://catalog.ku.edu/health-professions/nurse-anesthesia)

Occupational Therapy (http://catalog.ku.edu/health-professions/occupational-therapy)

Physical Therapy and Rehabilitation Science (http://catalog.ku.edu/health-professions/physical-theraphy-rehabilitation-science)

Respiratory Care (http://catalog.ku.edu/health-professions/respiratory-care)

Therapeutic Science (http://catalog.ku.edu/health-professions/therapeutic-science)

The Office of Graduate Studies reviews and approves matters related to graduate study, including admission, course work and degree requirements. Each college or school at the University of Kansas has a graduate division reporting to KU Lawrence Graduate Studies. The Office of Graduate Studies (http://www.kumc.edu/academic-affairs/graduate-studies.html) serves as the graduate division for the schools located on the medical center campus.

The School of Health Professions offers bachelor's degrees in the following fields:

- Clinical laboratory science
- Health information management
- Respiratory care

In addition, certificate programs are available in cardiac sonography, diagnostic ultrasound technology (general and vascular), and nuclear medicine technology.
University Honors Program
The school encourages qualified students to participate in the University Honors Program (http://www.honors.ku.edu).

The School of Health Professions offers graduate programs in the fields of dietetics and nutrition, molecular biotechnology, nurse anesthesia, occupational therapy, physical therapy, rehabilitation science, and therapeutic science. In addition, programs in audiology and speech-language pathology are offered cooperatively with the Lawrence campus via the Intercampus Program in Communicative Disorders.

Basic admission requirements are listed in the Graduate Studies (http://catalog.ku.edu/graduate-studies) section of the online catalog; however, individual graduate programs have specific additional requirements.

The School of Health Professions (p. 1) offers the following graduate degrees:

- Master of Arts
- Master of Occupational Therapy
- Master of Science
- Doctor of Audiology
- Doctor of Nursing Practice
- Doctor of Occupational Therapy
- Doctor of Physical Therapy
- Doctor of Philosophy
- Doctor of Speech-Language Pathology

Also available are certificate programs at the graduate level in the Department of Dietetics and Nutrition.

It is strongly recommended that students seek advising from the academic program of interest as soon as possible in his or her college study. Please refer to the specific academic program for appropriate contact information and advising availability.

Undergraduates on the KU Lawrence campus who are interested in health professions programs should consult Robin Merritt, health professions advisor in the Undergraduate Advising Center (http://advising.ku.edu), 785-864-2805, robin.r@ku.edu.

For information about university regulations, see Regulations (http://catalog.ku.edu/ regulations) or visit the University of Kansas Policy Library (http://www.policy.ku.edu). All students in the School of Health Professions are required to follow and abide by policies stated in the KU School of Health Professions Student Handbook (http://www.kumc.edu/school-of-health-professions/student-handbook.html) as well as those defined in the handbook of the student’s academic program.

Undergraduate Regulations
Credit/No Credit
A Credit/No Credit option is available to all degree-seeking undergraduates. You may enroll in one course a semester under the option, if the course is not in your major or minor. For more information, visit the KU Policy Library (https://documents.ku.edu/policies/governance USRR.html#art2sect2).

Warning: Certain undesirable consequences may result from exercising the option. Some schools, scholarship committees, and honorary societies do not accept this grading system and convert grades of No Credit to F when computing grade-point averages.

Check with your department before electing the Credit/No Credit option because most programs will NOT accept this for prerequisite courses.

Grading
The Departments of Clinical Laboratory Sciences, Health Information Management, and Respiratory Care recognize only grades of A, B, or C as passing. Grades of D and F are not considered passing for the purpose of advancing in the curriculum.

Graduation with Distinction and Highest Distinction
The School of Health Professions awards the Highest Distinction honor to undergraduates who have achieved the highest grade-point average among the programs in the school upon graduation. Distinction honors are bestowed upon those with the next highest final grade-point average. The total number of these 2 categories combined may exceed 10 percent of that year's graduating class.

Honor Roll
Students with grade-point averages of 3.5 who have completed at least 12 hours with letter grades are recognized on the honor roll or dean's list in fall and spring. An Honor Roll notation appears on the transcript.

Transfer of Credit
Only transfer grades of C or higher apply toward graduation from the School of Health Professions at KU. Not all programs in the school accept transfer students. Please check with the appropriate program for full eligibility requirements.

CredTran (http://admissions.ku.edu/apply/credits) is a transfer course equivalency system that lists more than 2,200 colleges and universities from which KU has accepted transfer courses in the past. If your school or course is not listed, your evaluation will be completed when you are admitted to KU.

Graduate Regulations
Programs at the graduate level follow policies administered by the Office of Graduate Studies (http://catalog.ku.edu/graduate-studies/kumc/ regulationstext) in addition to those indicated in the KU School of Health Professions Student Handbook (http://www.kumc.edu/school-of-health-professions/student-handbook.html) in the handbook of the specific academic program.

Credit/No Credit
Graduate students may select the Credit/No Credit option for certain courses. Students should follow the policy outlined in the University Senate Rules and Regulations, Section 2, article 2.27, and contact the department or program for more information.

Anatomy and Cell Biology Courses
ANTM 380. Special Topics In Anatomy. 1-5 Hours.
Advanced instruction is offered in the form of tutorials for a limited number of undergraduate students with prior experience in anatomical sciences. The emphasis of the course will be advanced study of a specific area of gross anatomy, neuroanatomy, or histology. In gross anatomy and
neuroanatomy, students will do a complete, detailed dissection of a specific area of the body and present it to the faculty with a term paper on a clinically significant aspect of the dissection. In histology, students will prepare specific organs for special histological and immunocytochemical techniques with an oral presentation and term paper. Prerequisite: Permission of instructor. LEC.

Clinical Lab Sciences Courses

CLS 210. Introduction to Clinical Laboratory Sciences. 1 Hour.
An introductory overview of the professions of Clinical Laboratory Sciences and Cytotechnology including types of analyses performed, specialties, interrelationships in the health care system and a visit to a clinical laboratory. This course will enable those considering a major in the Clinical Laboratory Sciences to have a clear definition of the professions. (Same as BIOL 210.) LEC.

CLS 520. Phlebotomy. 1 Hour.
Principles and practice of collecting blood specimens for clinical laboratory analyses. Includes specimen identification, equipment, anticoagulants, safety precautions, specimen transport, and processing. Hepatitis immunization required. Prerequisite: Admission to the Clinical Laboratory Science Program or consent of instructor. LAB.

CLS 523. Fundamentals of Analytical Techniques Laboratory. 3 Hours.
Student laboratory with recitation addressing techniques and methodologies used in the clinical laboratory. Laboratory skills include laboratory math, quality control, pipetting, and instrumentation used in analysis of body fluids. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of the instructor. LAB.

CLS 530. Clinical Chemistry I. 3 Hours.
Introduction to human physiology and pathophysiology I with emphasis on proteins, carbohydrates, lipids, enzymes, liver kidney function, blood gases and body fluids. The related clinical chemistry tests, their principles, analysis, interpretation, and significance are included. Prerequisite: CLS 523 or consent of instructor. LEC.

CLS 532. Clinical Microbiology I. 3 Hours.
Pathogenesis and disease processes of pathogenic, opportunistic, and saprophytic bacteria; composition and preparation of media; sterilization and disinfection; antimicrobial agents and susceptibility testing; topics related to theory and applications. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of the instructor. LEC.

CLS 533. Clinical Microbiology I Laboratory. 3 Hours.
A laboratory with recitation addressing diagnostic procedures used for isolation and identification of clinically significant bacteria. Prerequisite: CLS 532 or CLS 532 concurrently, or consent of the instructor. LAB.

CLS 536. Hematology I. 3 Hours.
Fundamentals of hematopoiesis; the physiology, function, and cytochemistry of normal and abnormal blood cells; the theory and performance of clinical laboratory methods related to these parameters. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of the instructor. LEC.

CLS 537. Hematology I Laboratory. 2 Hours.
A laboratory with recitation emphasizing basic hematologic techniques and identification of normal and abnormal cells in peripheral blood and bone marrow. Prerequisite: CLS 536, or CLS 536 concurrently, or consent of the instructor. LAB.

CLS 538. Immunology. 3 Hours.
Covers basic theory of molecular and cellular immunology of innate and adaptive immune systems. Lectures include: structure and function of antibodies, complement, major histocompatibility complexes, B- and T-cells and their receptors, cellular and molecular basis of the immune response and immune regulation, hypersensitivity, and immune tolerance. Clinical applications and methodologies will be incorporated into lectures. Prerequisite: Admission to the Department of Clinical Laboratory Sciences or consent of instructor. LEC.

CLS 540. Clinical Chemistry II. 2 Hours.
Introduction to human physiology and pathophysiology II with emphasis on hormones, therapeutic drugs, clinical toxicology, tumor markers, vitamins and trace elements. The related clinical chemistry tests, their principles, analysis, interpretation, and significance are included. Prerequisite: CLS 530 or consent of instructor. LEC.

CLS 541. Professional Development. 2 Hours.
This course combines lectures and projects to give students an introduction to and practice in the following: resume writing and interviewing skills; the components of and the production of a scholarly product; the basic principles involved in education with the identification and writing of educational objectives; the activities and responsibilities involved in laboratory management. Prerequisite: CLS 520 - CLS 549 or consent of instructor. LEC.

CLS 542. Clinical Microbiology II. 2 Hours.
Pathogenesis, disease processes, and diagnostic protocols for parasites, medically important fungi and mycobacteria. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of the instructor. LEC.

CLS 543. Clinical Microbiology II Laboratory. 2 Hours.
A laboratory with recitation addressing diagnostic procedures used for isolation and identification of parasites, medically important fungi, and mycobacteria. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of the instructor. LAB.

CLS 544. Immunohematology I. 3 Hours.
Principles of immunohematology as applied to transfusion services, donor services, component preparation and storage, and transfusion therapy. Includes problem solving for transfusion related situations and evaluation of problems related to hemolytic disease of the newborn, autoimmune hemolytic disorders, and transfusion reactions. Prerequisite: BIOL 503 or CLS 538, CLS 546, or consent of instructor. LEC.

CLS 545. Immunohematology I Laboratory. 2 Hours.
Principles of immunohematology as applied to transfusion services, donor services, component preparation and storage, and transfusion therapy. Includes problem solving for transfusion related situations and evaluation of problems related to hemolytic disease of the newborn, autoimmune hemolytic disorders, and transfusion reactions. Prerequisite: BIOL 503 or CLS 538, CLS 546, or consent of instructor. LAB.

CLS 546. Hematology II. 3 Hours.
Lectures on hematopoiesis, the physiology, function, and cytochemistry of normal and abnormal blood cells, normal and abnormal hemostasis, and the theory and performance of laboratory methods related to these parameters. Prerequisite: CLS 536 and CLS 537 or consent of instructor. LEC.

CLS 547. Hematology II Laboratory. 2 Hours.
A laboratory with recitation involving performance of hematology laboratory procedures with emphasis on basic hematologic and coagulation techniques and the identification of normal and abnormal cells in the peripheral blood and bone marrow. Prerequisite: CLS 536, CLS 537 and CLS 546 or CLS 546 concurrently, or consent of the instructor. LAB.
CLS 549. Clinical Immunology I Laboratory. 2 Hours.
A laboratory with recitation involving performance of immunoassays.
Emphasis on theory, methodologies, and clinical correlations.
Prerequisite: CLS 523, BIOL 503 or CLS 538, or consent of instructor. LEC.

CLS 600. Introductory Biochemistry. 4 Hours.
An introduction to the chemistry and metabolism of carbohydrates, lipids, proteins, nucleic acids, and other biologically important molecules.
Topics include cellular processes, reactions and interactions occurring in living organisms. Prerequisite: Admission to the Department of Clinical Laboratory Sciences or consent of instructor. LEC.

CLS 605. Introduction to Molecular Diagnostics I. 1 Hour.
An introduction to molecular biology and molecular biological methodologies and technologies commonly used in basic, applied, and diagnostic laboratories. An emphasis is placed on molecular biology principles and techniques used in the clinical laboratory for diagnosis, prognosis, and treatment of disease. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of the instructor. LEC.

CLS 607. Introduction to Molecular Diagnostics I Laboratory. 1 Hour.
An introduction to molecular diagnostic methodologies and technologies commonly used in clinical laboratories. Principles and performance of nucleic acid isolation, restriction enzyme digestion, electrophoresis, amplification, hybridization, and analysis. Applications in infectious and genetic disease. Prerequisite: Admission to the Clinical Laboratory Science program or consent of the instructor. LEC.

CLS 610. Advanced Biotechniques Lecture. 3 Hours.
A lecture course covering the theory behind a variety of current molecular, biochemical and immunologic techniques utilized in today's research and diagnostic laboratories. Material presented will include proper specimen preparation and handling; technique set-up and quality control; trouble shooting and technique modification. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LEC.

CLS 611. Advanced Biotechniques Laboratory. 2 Hours.
Student Laboratory course with practical application of selected molecular, biochemical, and immunologic techniques. Designed to provide limited experience with advanced chromatographic techniques (DEAE-cellulose, affinity columns, HPLC, and gas); multiple electrophoresis techniques (starch-gel, SDS-page, Southern blot); nucleic acid analysis and manipulation; peptide production and utilization; cell culture, including appropriate sterilization methods, aseptic handling, and steps to ensure attachment. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LAB.

CLS 615. Journal Club. 1 Hour.
Introduction to analysis of journal articles. Initial sessions will place an emphasis upon reading the article with an eye to replicating a described method or specific technique; analyzing data presented for validity; acceptance or rejection of the researchers' conclusions. Follow-up sessions will involve analyzing and presenting selected articles. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LEC.

CLS 620. Radiation Safety. 1 Hour.
A lecture course covering the structure of the atom, isotopes, and radioactivity. Emphasis will be on radiation protection and safe handling of isotopes. In addition, the student will be introduced to methods for detection and quantitation of radioactivity in biological materials.
Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LEC.

CLS 621. Biotechnology Methodologies Practicum. 4 Hours.
Placement of the student in a biotechnology core facility supporting molecular biological research from multiple laboratories. Such a core facility would provide, but not be restricted to, the following methodologies: amino acid analysis; protein/peptide sequencing; peptide synthesis; DNA/RNA sequencing; oligonucleotide synthesis. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LAB.

CLS 622. Problems in Molecular Diagnostics. 2 Hours.
Provides a targeted review of current theory, techniques and application of molecular techniques in the diagnosis of infectious disease, and hereditary and acquired genetic disease. Prerequisite: Admission to the Clinical Laboratory Science or Cytotechnology program, or consent of instructor. LEC.

CLS 623. Molecular Genetics Practicum. 4 Hours.
Placement of the student in a molecular genetics research laboratory (utilizing either prokaryotic or eucaryotic organisms or both) working with laboratory staff on an on-going small project within the laboratory. Molecular genetics laboratories utilized could be involved in, but not restricted to, any of the following activities: gene sequencing, cloning or splicing; elucidation of the mechanisms that regulate gene expression; proto-oncogene activation. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LAB.

CLS 633. Special Topics Practicum. 4 Hours.
Placement of the student in any of a variety of research laboratories actively participating in molecular biological projects utilizing advanced genetic, biochemical immunologic, or other molecular techniques. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LAB.

CLS 639. Urinalysis. 1 Hour.
Tutorial instruction and clinical laboratory experience in urinalysis with the application of knowledge and skills to methodology, instrumentation, and quality control. Advanced content on renal disorders with emphasis on pathological mechanisms, interpretation, and clinical correlation of test results. Prerequisite: CLS 540, or consent of instructor. LEC.

CLS 640. Clinical Chemistry III. 2 Hours.
Tutorial instruction in advanced clinical chemistry focusing on correlation of laboratory analysis and pathophysiology. Addresses organ system disease, metabolic disease, nutrition, and other special topics. Prerequisite: CLS 540, or consent of instructor. LEC.

CLS 641. Clinical Chemistry and Immunology Practicum. 3 Hours.
Tutorial instruction and clinical laboratory experience in the chemistry of body fluids, with the application of knowledge and skills to methodology, instrumentation, and quality control. Involves correlation of chemical and immunological analyses to pathophysiology. Prerequisite: CLS 540 and CLS 549, or consent of instructor. LAB.

CLS 642. Clinical Microbiology III. 2 Hours.
Tutorial instruction addressing pathophysiology and diagnostic protocols of viruses, rickettsia, chlamydia, mycoplasma, and other unusual organisms. Prerequisite: CLS 532, CLS 533, CLS 542 and CLS 543, or consent of instructor. LEC.

CLS 643. Clinical Microbiology Practicum. 3 Hours.
Tutorial instruction and clinical laboratory experience in diagnostic microbiology, with the application of knowledge and skills to methodology, instrumentation, and quality control. Prerequisite: CLS 532, CLS 533, CLS 542 and CLS 543, or consent of instructor. LAB.
CLS 644. Immunohematology II. 2 Hours.
Tutorial instruction addressing advanced transfusion medicine theory and concepts. Focuses on hospital transfusion services, blood utilization, management, legal and regulatory issues, and special topics. Prerequisite: CLS 544 and CLS 545, or consent of instructor. LEC.

CLS 645. Immunohematology Practicum. 2 Hours.
Tutorial instruction and clinical laboratory experience in transfusion medicine, with the application of knowledge and skills to methodology, instrumentation, and quality control. Prerequisite: CLS 544, CLS 545, or consent of instructor. LAB.

CLS 646. Hematology III. 2 Hours.
Tutorial instruction on hematologic and hemorrhagic disorders with emphasis on pathological mechanisms, interpretation, and clinical correlation of test results. Prerequisite: CLS 546 and CLS 547, or consent of instructor. LEC.

CLS 647. Hematology Practicum. 3 Hours.
Tutorial instruction and clinical laboratory experience in hematology, with the application of knowledge and skills to methodology, instrumentation, and quality control. Prerequisite: CLS 546 and CLS 547, or consent of instructor. LAB.

CLS 648. Clinical Immunology II. 1 Hour.
Tutorial instruction on immune system involvement in disease processes, immune dysfunction and correlation of laboratory data with disease states. Prerequisite: CLS 549, or consent of instructor. LEC.

CLS 650. Clinical Laboratory Science Review. 1 Hour.
This review will enable students to identify areas of weakness in their understanding of clinical laboratory science in preparation for clinical rotations and comprehensive examination. Students will participate in classroom and laboratory sessions in order to evaluate their performance in meeting required competencies. Prerequisite: CLS 520-CLS 549 inclusive, CLS 605, CLS 607, CLS 661, and CLS 639-CLS 648 inclusive, or consent of instructor. LEC.

CLS 655. Molecular Biotechnology Review Course. 1 Hour.
Situation and problem solving oriented web based course that reviews material taught. This course will enable students to identify areas of weakness in their understanding of molecular biotechniques and their applications. Interactive question-answer format and a comprehensive, certification-type exam will aid students in evaluating their performance in meeting required competencies. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of instructor. LEC.

CLS 661. Management Principles in Health Care. 3 Hours.
Introduction to basic principles of management, education, and research and their application in the current health care environment. Course content includes: management theory, scope of management, quality issues, budgeting, personnel issues, evaluation and application of management concepts; introductory research methods and evaluation of journal articles. Cross listed with HEIM 661 and RESP 661. Prerequisite: Admission to the Clinical Laboratory Sciences program or consent of the instructor. LEC.

CLS 670. Principles of Education in Clinical Laboratory Science. 1 Hour.
Educational concepts including principles of learning, curriculum design, evaluation, teaching methodologies, audiovisual and library resources, accreditation, student services, and legal considerations. Prerequisite: Admission to the Clinical Laboratory Science program or consent of instructor. LEC.

CLS 690. Special Topics. 1-5 Hours.
A course of study offering the student the opportunity for acquisition of additional knowledge and skills in one of the clinical laboratory routine areas or a specialty area, e.g., cytogenetics, metabolic analysis, or supervision; or at another clinical site. Course requirements designed in cooperation with student. Prerequisite: Admission to the Clinical Laboratory Science program or consent of instructor. LEC.

CLS 705. Fundamentals of Pathophysiology. 3 Hours.
Review of integrative human physiology with an emphasis upon homeostatic mechanisms and etiologies of disease. The relationships among function and dysfunction at the molecular, cellular and tissue level (pathology), organ and system level (impairment), and to the health body (functional limitations) will be applied in each of the body systems. Discussions and applied materials will be tailored to the professional student population. Prerequisite: Admission to the Dietetics and Nutrition program or permission of the instructor(s). LEC.

CLS 710. Molecular Techniques I. 2 Hours.
A lecture course covering the theory underlying molecular techniques involving nucleic acids and mammalian cell culture. Topics include purification and analysis of nucleic acids, recombinant DNA, construction and screening of genetic libraries, genetic engineering, control of gene expression, construction of gene fusions, amplification, hybridization, and nucleic acid databases and bioinformatic analysis. Prerequisite: Admission to the MS in Molecular Biotechnology program or consent of instructor. LEC.

CLS 711. Molecular Techniques Laboratory I. 2 Hours.
A laboratory course emphasizing the application, practice, and troubleshooting of molecular techniques involving nucleic acids and mammalian cell culture. Topics include purification and analysis of nucleic acids, recombinant DNA, genetic engineering, control of gene expression, construction of gene fusions, amplification, hybridization, and nucleic acid databases and bioinformatic analysis. Prerequisite: Admission to the MS in Molecular Biotechnology program or consent of instructor. LEC.

CLS 720. Molecular Techniques II. 2 Hours.
Lecture and discussion course covering the theory and practice of molecular techniques for protein analysis. General topics include: protein detection, quantification, and characterization; protein separation and identification; protein expression systems; protein extraction, fractionation, solubilization and purification; analysis of protein-protein interactions; proteomics; and mass spectroscopy. Prerequisite: Admission to the MS in Molecular Biotechnology program or consent of instructor. LEC.

CLS 721. Molecular Techniques Laboratory II. 2 Hours.
Laboratory course for the practice and application of molecular techniques for analyzing and manipulating proteins. Techniques will include: bioinformatics analyses; expression, purification and solubilization of epitope tagged fusion proteins, protein-protein interactions; protein quantification; protein separation by electrophoresis and column chromatography; protein detection by chemical and immunological methods; and LC-MS. Prerequisite: Admission to the MS in Molecular Biotechnology program or consent of instructor. LEC.

CLS 730. Current Issues in Biotechnology. 1 Hour.
A seminar course that addresses topics including scientific, business, legal, social, and ethical issues in biotechnology. Students explore these topics through literature discussions, student presentations, and discussions with speakers from biotechnology-related academic and industry sectors. This course is meant for graduate students in the Molecular Biotechnology program. Prerequisite: Consent of instructor. SEM.
CLS 740. Journal Club. 1 Hour.
This course is an introduction to the critical reading of journal articles from the current literature in molecular biotechnology. Discussions will emphasize the analysis of experimental design and technique, as well as the significance of the results and validity of the author's conclusions. Students will learn how to search for articles and background information pertaining to selected topics, how to present a polished, professional summary of that literature. Assigned papers for discussion and student presentations will focus on new strategies and technologies in molecular biotechnology of wide fundamental importance, or on hypothesis-based research that uses molecular biotechnological approaches. Prerequisite: Completion of (or concurrent enrollment in) CLS 710 and CLS 720. LEC.

CLS 742. Scientific Writing. 1 Hour.
Formats, techniques, and styles of scientific writing. Emphasis will be placed on clear, concise, and effective writing. The class will focus on the process of writing scientific manuscripts and grant proposals. Students will identify and define the sections of scientific manuscripts as well as grant proposals. During the course, each student will write an R21-type (NIH Exploratory/Developmental Research Grant) proposals as could be submitted to the most appropriate NIH Institute. This course is intended for students enrolled in their final semester of the Master of Science in Molecular Biotechnology program. Prerequisite: Consent of Instructor LEC.

CLS 744. Topics in Molecular Biotechnology. 1-5 Hours.
Advanced course on special topics in molecular biotechnology, offered by arrangement. May include lectures, discussions, readings, laboratory techniques, and supervised research experience. This course is intended for graduate students in the Molecular Biotechnology program. Prerequisite: Consent of Instructor LEC.

CLS 750. Practicum I. 4 Hours.
Advanced practical experience in a selected laboratory pursuing applied, basic, or diagnostic research projects utilizing genetic, biochemical, or other molecular biology-related approaches. Students apply and extend their knowledge and skills by performing a research and/or development project under the supervision of a site mentor. This practicum is performed at a site other than those utilized for CLS 751 (Practicum II) and CLS 752 (Practicum III). Prerequisite: Completion of CLS 710, CLS 711, CLS 720, and CLS 721, and consent of the instructor. PRA.

CLS 751. Practicum II. 5 Hours.
Advanced practical experience in a selected laboratory pursuing applied, basic, or diagnostic research projects utilizing genetic, biochemical, or other molecular biology-related approaches. Students apply and extend their knowledge and skills by performing a research and/or development project under the supervision of a site mentor. This practicum is performed at a site other than those utilized for CLS 750 (Practicum I) and CLS 752 (Practicum III). Prerequisite: Completion of CLS 710, CLS 711, CLS 720, and CLS 721, and consent of the instructor. PRA.

CLS 752. Practicum III. 5 Hours.
Advanced practical experience in a selected laboratory pursuing applied, basic, or diagnostic research projects utilizing genetic, biochemical, or other molecular biology-related approaches. Students apply and extend their knowledge and skills by performing a research and/or development project under the supervision of a site mentor. This practicum is performed at a site other than those utilized for CLS 750 (Practicum I) and CLS 751 (Practicum II). Prerequisite: Completion of CLS 710, CLS 711, CLS 720, and CLS 721, and consent of the instructor. PRA.

Cytotechnology Courses

CYTO 300. Introduction to Cytology. 5 Hours.
Orientation to the profession of cytotechnology including basic cell biology, ethics, the microscope, history of the profession. Also basic concepts of pathology are introduced including normal, benign proliferative, inflammatory, and reparative processes. The cellular alterations caused by these processes are introduced using the female genital system. The histology, anatomy, and endocrine system of the female genital tract are also covered. Microscopy of this section includes proper use and care of the microscope, hormonal cytology, and the range of normal reparative reactions. The recognition of specific infectious agents and/or their cellular manifestations is also included using the female genital tract as the body system under investigations. Prerequisite: Admissions to the Cytotechnology Program or permission of instructor. LEC.

CYTO 321. Neoplasia in the Female Genital Tract I. 5 Hours.
The pathologic concepts of neoplasia, the morphogenesis of carcinoma, and the cellular changes associated with both premalignant and malignant changes of squamous cell lesions in the cervix are studied. Microscopy in this section includes pre-screening of clinical care load identifying normal and abnormal cellular criteria. Prerequisite: CYTO 300 or instructor's permission. LEC.

CYTO 322. Neoplasia in the Female Genital Tract II. 6 Hours.
A continuation of CYTO 321 with the emphasis on lesions of the uterine corpus, metastatic lesions, and lesions of the vulva and vagina. Also treatment effect and pregnancy change are included in this section. Practical microscopy is also continued with the pre-screening of clinical cases. Prerequisite: CYTO 321 or instructor's permission. LEC.

CYTO 355. Cytology Lab Management, Respiratory Cytology and Oral Cytology. 4 Hours.
Cytology lab regulations and QC requirements. Management requirements regarding safety, quality improvement, and personnel. Also, the normal, benign, and malignant changes of the upper and lower respiratory tract and the oral cavity. The anatomy, histology, and cytology of each of the body sites is studied as well as infectious agents common to these sites. Microscopy includes prescreening gynecologic material while further increasing speed and accuracy. Respiratory and oral specimens are also included in the practical microscopy. Students rotate through the processing laboratory. Prerequisite: CYTO 322 or permission of the instructor. LEC.

CYTO 370. Effusions, C.S.F., and Miscellaneous Cytology. 3 Hours.
This course includes the cytology of the reticulo-endothelial system, effusions, CSF, and other miscellaneous fluids. Normal, benign, and malignant cellular criteria are covered as well as the anatomy and histology of each body site. Microscopy includes further practice in gyn material and all non-gyn specimens studied to this point. Students continue to use the processing laboratory on a rotating basis. Prerequisite: CYTO 355 or instructor's permission. LEC.

CYTO 380. Gastrointestinal, Breast, G.U. and F.N.A. Cytology. 6 Hours.
This course includes the cytology of the GI system, the breast, the urinary tract, and other miscellaneous body sites. The anatomy and histology of each of the body sites is studied; cellular criteria for benign, normal, and malignant changes are introduced. Advanced topics such as aspiration cytology will also be covered. Microscopy includes further practice in the pre-screening of gyn material as well as all non-gyn material studied to this point. Students continue to use the processing laboratory on a rotating basis. Prerequisite: CYTO 370 or instructor's permission. LEC.
CYTO 415. Scientific Method and Literature in Cytology. 1 Hour.
This course will focus on the scientific method and research tools as used in recent journal articles. Discussion will specifically focus on critical evaluation of the conclusions presented and the evidence used to support those conclusions. Also, data retrieval will be practiced as the students research and write a paper on a cytology related topic. Prerequisite: CYTO 380 or instructor’s permission. LEC.

CYTO 420. Advanced Practicum in Cytology. 2 Hours.
Microscopy includes further practice in the screening of all gyn and non-gyn material at professional entry levels of speed and accuracy. Students continue to use the processing laboratory on a rotating basis and participate in case conference. Prerequisite: CYTO 420 or instructor’s permission.

CYTO 450. Advanced Topics in Cytology. 2 Hours.
This course will include lectures on advanced topics in cytology. A comprehensive final examination completes the course. Students continue to increase speed and accuracy in microscopy to at least professional entry levels. Prerequisite: CYTO 420 or instructor’s permission.

CYTO 523. Fundamental Analytical Techniques Laboratory. 1 Hour.
A laboratory classroom experience and recitation providing hands-on practice of basic laboratory skills. Laboratory exercises will provide practice with: introduction to pipetting and calibration of pipettes; principles of spectrophotometry; standard curve preparation; basic quality control; laboratory safety. Prerequisite: Admission to the Cytotechnology program or consent of the instructor. LAB.

Dietetics and Nutrition Courses

DIET 660. Management of Human Resources in Dietetics. 6 Hours.
Focus on human resource development and utilization as the student works with food service personnel. Learning encompasses recruiting, training, supervision, and evaluation of employees in a food service system. Open only to seniors majoring in dietetics. Prerequisite: Management concepts or personnel administration. LEC.

DIET 661. Management of Food Processing and Service. 6 Hours.
Application of theories and concepts pertaining to management functions and interdepartmental relationships in a variety of clinical food service settings. Consideration is given to the newer technological developments in the administration of food services. Open only to seniors majoring in dietetics. Prerequisite: Food service systems and management in dietetics. FLD.

DIET 662. Special Problems in Food Service Management. 3 Hours.
Advanced experience in the practice of dietetics in an assigned setting. Problems and procedures will vary with interest and needs of the students. Open only to seniors majoring in dietetics. Prerequisite: Food service systems. FLD.

DIET 672. Nutrition Care of Patients. 6 Hours.
Directed observation and supervised experience in nutritional care of patients. Nutrition principles studied in DIET 670, Applied Normal Nutrition, and DIET 671, Nutrition in Medical Science, are applied in clinical situations. Open only to seniors majoring in dietetics. Prerequisite: Principles of nutrition; and nutrition throughout the life cycle. LEC.

DIET 675. Seminar in Dietetics and Nutrition. 1 Hour.
Involves study and discussion of text and general materials pertaining to philosophy and methodology in the field of dietetics and nutrition. Guest lecturers will participate. May be repeated for credit providing no course duplication takes place. Open only to seniors majoring in dietetics. Prerequisite: Introduction to dietetics. FLD.

DIET 680. Selected Topics in Dietetics. 1-3 Hours.
An elective course to allow student credit hours in special issues or problems in dietetics offered by individual faculty. Course content can provide students with investigation of problems and/or issues relevant to theory, research investigation and/or practice related to the field of nutrition and dietetics. LEC.

DIET 800. Selected Topics in Dietetics. 1-3 Hours.
An elective course to allow student credit hours in special issues or problems in dietetics offered by individual faculty. Course content can provide students with investigation of problems and/or issues relevant to theory, research investigation and/or practice related to the field of nutrition and dietetics. LEC.

DIET 801. Current Issues or Trends. 3 Hours.
Review of current issues in the economic, social, ethical, political, legal, technological, and ecological environments and the effects of these changes on dietetics practice. LEC.

DIET 802. Foods Writing for Professionals. 3 Hours.
A course focusing on the writing skills needed by the food professional in order to communicate effectively in writing about food and food-related topics. Student experiences include hands-on projects in research and writing for various audiences and types of publications. LEC.

DIET 803. Accounting Concepts & Analysis. 3 Hours.
An emphasis on financial statement analysis is the main objective of the course. A review of all major accounts in the income statement, balance sheet and statement of cash flow is made in determining a firm’s performance and financial condition in relation to what matters most to shareholders and investors. Prerequisite: General Calculus and Linear Algebra LEC.

DIET 805. Entrepreneurship Theory and Practice. 3 Hours.
Development and management of small businesses or private practice within the dietetics industry. Business plan development, marketing, cost considerations. Overview of consulting to health care and hospitality operations and examination of skills required for success. LEC.

DIET 819. Grant and Scientific Writing for the Professional. 3 Hours.
Grant writing, identifying external funding, managing grants, preparing manuscripts for peer-reviewed publication, and preparing papers and poster for presentation at professional meetings. Prerequisite: Enrolled GPPDEA. LEC.

DIET 820. Healthcare Administration. 3 Hours.
A comprehensive review of today’s health care institutions and their response to the economic, social/ethical, political/legal, technological, and ecological environments. LEC.

DIET 824. Financial Management and Cost Controls in Dietetics. 3 Hours.
This course overviews the fundamental knowledge of financial management, managerial accounting, and operational cost controls for dietetics professionals. Topics include a review of managerial accounting concepts for not-for-profit organizations and for-profit organizations based on the Uniform System of Accounts, value and risk analyses, budgeting, asset management, franchising and management contracts, cost-volume-profit analyses, and operational applications for financial performance. LEC.

DIET 829. Nutrition and Aging. 3 Hours.
An overview of nutrition and the aging process. Physiological, psychological, and sociological aspects of aging, theories of aging, internal and external factors related to nutrient intake, and nutrient needs will be considered. Physical activity and practical application to community settings is addressed. LEC.

DIET 830. Nutrition: a Focus on Life Stages. 3 Hours.
The influence of normal physiological stresses on nutritional needs throughout the life span will be explored. Evaluating nutritional status at different stages of life and identifying appropriate needs and services will be included while, at the same time, consideration given for specific characteristics such as physiological condition and cultural heritage. LEC.
DIET 832. Functional Foods for Chronic Disease Prevention. 3 Hours. 
Integrate and evaluate the regulatory principles, food science, nutrient science and functional metabolism for the development of functional foods, nutraceuticals, and dietary supplements for chronic disease prevention. Prerequisite: Biochemistry, Human Nutrition, Basic Food Science or consent of instructor. LEC.

DIET 833. Principles of Statistics. 3 Hours. 
A basic course in statistics: Statistical methods applied to experimental and survey data from social or natural sciences; test of hypotheses concerning treatment means; linear regression; product-moment, rank, and bi-serial correlations; contingency tables and chi-square tests. LEC.

DIET 834. Methods of Research in Nutrition. 3 Hours. 
A study of basic research terminology and designs commonly used in nutrition research. Topics include: research on animals, tissue culture and human subjects; qualitative, quantitative and outcomes research; ethical issues in research; dissemination of research findings; and appropriate use of research findings. Prerequisite: Consent of instructor. LEC.

DIET 836. Biochemical, Physiological, and Genetic Aspects of Human Nutrition. 3 Hours. 
The topics covered will examine the integration of biochemistry, physiology, genetics, and nutrition. Emphasis will be placed on developing an understanding of how the combination cellular structure and function is related to the metabolic needs of the cell and its response to the environment. The integrated approach will form a basis for evaluating nutritional needs in humans. Prerequisite: courses in nutrition, physiology, and biochemistry, or consent of instructor. LEC.

DIET 838. Advanced Medical Nutrition Therapy. 3 Hours. 
This course will discuss the role of diet in disease including diet as a factor related to prevention of diseases or illness, diet as an etiologic agent in illness and diet as a treatment for disease. Medical nutrition therapy is the use of specific nutrition services to treat an illness, injury or condition and involves two phases: 1) assessment and 2) treatment, which includes diet therapy, counseling and/or the use of specialized nutrition supplements. LEC.

DIET 839. Clinical Aspects of Nutrition Support. 3 Hours. 
The course content provides in depth study of specialized visceral and somatic nutrition assessment of the critically ill patient. Content includes extensive review of methods for determining energy expenditure and substrate utilization during specific disease states. Discussion of the aspects of feeding the critically ill patient including timing, enteral and parenteral feeding methodology, specialized medical foods, equipment requirements, feeding complications and prevention, and pharmacological issues. Students will be expected to calculate formulas for both types feeding modalities and provide discussion of the evidence based guidelines for administration of these nutrition therapies. Prerequisite: minimum of 3 cr hours in Medical Nutrition Therapy. LEC.

DIET 841. International Nutrition and World Hunger. 3 Hours. 
Advanced study of the magnitude, cause, and nature of hunger and undernutrition in low income countries; emphasis on programs, policies and planning directed toward alleviating hunger. LEC.

DIET 842. Nutrition and Wellness. 3 Hours. 
Course will address wellness promotion through nutrition. Nutritional risk and protective factors will be examined as they relate to public health and individual nutrition. LEC.

DIET 843. Nutrition Education in the Community. 3 Hours. 
Principles and practices of teaching individuals and groups to translate nutrition knowledge into action. Emphasis on research in and evaluation of nutrition education. LEC.

DIET 844. Behavior Management Theory. 3 Hours. 
An in-depth analysis of the development of the behavioral basis of individual and group behavior in business, governmental, educational, and other organizations with emphasis on current research literature and applications. LEC.

DIET 845. Nutritional Aspects of Oncology. 3 Hours. 
A course focusing on current research examining the role of nutrition in specific cancers. Topics include basic cancer biology, pathology and nutritional research methodology. Sources of information for cancer prevention programs and the application of translational research to clinical patient populations will be discussed. LEC.

DIET 850. Operations Management and Analysis. 3 Hours. 
The study of the role of operations systems in the provision of value for the customer. Operations systems design; capacity determination, resource requirements planning and control, theory of constraints, supply chain management, quality management and control and project management are discussed and analyzed. Prerequisite: Basic graduate statistics course LEC.

DIET 854. Non-Thesis Research. 1-3 Hours. 
Directed study of special problems in nutrition or nutrition care. This course provides for the individual or group study of special problems. Through directed readings, investigations and projects, the student acquires information with reference to questions in dietetics and nutrition not covered in organized courses. This course fulfills the research requirements for the Non-Thesis Option. RSC.

DIET 862. Maternal and Child Nutrition. 3 Hours. 
Critical examination of behavioral, physiological, and public health issues impacting dietary and nutritional factors that support normal growth and development. Course content focuses on the early stages of the life cycle: gestation, lactation, infancy, preschool, school age, and adolescence. Topics include the fetal programming hypothesis, growth and nutritional requirements, breast and formula feeding of infants, infant weaning, and eating behaviors that lead to normal growth, growth faltering, and pediatric obesity. Cross-listed with DN 862. Prerequisite: Registered Dietitian, or registry eligible dietitian. LEC.

DIET 865. Nutrition and Human Performance. 3 Hours. 
This course is designed to develop an understanding of nutrition, based upon knowledge of the biochemical and physiological processes and functions of specific nutrients in meeting nutritional requirements. Emphasis will be placed upon the relationship of optimal nutrition and physical efficiency and performance. LEC.

DIET 870. Nutrition Counseling and Education Methods. 3 Hours. 
Nutrition education for groups and individuals in clinical and community settings. Includes discussion and experience in applying learning theory, assessing educational needs, stating goals and objectives, selecting learning activities, implementing and evaluating instruction, and documenting care provided. LEC.

DIET 875. Pediatric Clinical Nutrition. 3 Hours. 
Examines physiological, biochemical and nutritional aspects of disease processes relevant to infants and children up to 18 years of age. Medical nutrition therapy for a variety of medicine conditions found in this population will be discussed including inborn errors of metabolism, food hypersensitivity, obesity, and diseases of the major organ systems. Cross-listed with DN 875. Prerequisite: Registered Dietitian or registry eligible dietitian. LEC.

DIET 876. Intervention for the Prevention & Management of Obesity. 3 Hours. 
This course emphasizes obesity in a population group ranging from childhood to the adult. Course materials will examine the impact of obese
conditions on disease development throughout the life cycle. The course will critically analyze current evidence focused on interventions used in the behavioral and clinical management of overweight and obese individuals in community and clinical settings. Prerequisite: Consent of instructor. LEC.

**DIE T 880. Dietary and Herbal Supplements. 3 Hours.**
Explore the safety and efficacy of botanical/herbal and dietary supplements in health applications including dietary supplementation in the prevention and treatment of chronic disease. Prerequisite: Human physiology is advisable. LEC.

**DIE T 881. Phytochemicals. 3 Hours.**
The course is an overview on phytochemicals (non-nutritive biologically active compounds which may have health benefits) from fruits, vegetables, cereals and oilseeds. The course will include discussions of functional foods which are designer foods providing these compounds to the public. It will cover recent findings on chemistry, physiological functions, potential health implications of phytochemicals. LEC.

**DIE T 886. Advanced Nutrition: Nutrigenomics, Nutrigenetics and Advanced Lipid Metabolism in Human Nutrition. 3 Hours.**
This course integrates topics related to current biochemical issues in nutritional science. The course will examine topics ranging from the cellular, molecular, and biochemical aspects of nutritional science to translational and applied research at the clinical and educational level. The goal is to emphasize the integrative and complex nature of human nutrition research ranging from basic science to clinical studies to translational and applied studies. LEC.

**DIE T 887. Nutrition and Immunology. 3 Hours.**
This course examines the mechanisms underlying the modulation of immune responses by nutritional, naturally occurring and orally active food compounds. The role of nutritional status and changes in the life stages which impact immune response impacting disease initiation and progression. The role of the GI system and changes in life stages impacting immunity and their relationship to immune response will be discussed. LEC.

**DIE T 889. Thesis. 1-6 Hours.**
Scholarly essay based research, written under the guidance of the student's adviser. Credit given upon meeting thesis requirements for the master's program. THE.

**Dietetics and Nutrition Courses**

**DN 601. Current Concepts in Clinical Nutrition. 2 Hours.**
An overview of the nutritional therapies used for various disease disorders. The course emphasizes the nutritional care and treatment related to state of the art practice. LEC.

**DN 670. Applied Normal Nutrition. 3 Hours.**
Applied study of the relationship of normal food and nutrition principles to health promotion in select stages of the lifecycle. LEC.

**DN 671. Nutrition in Medical Science. 6 Hours.**
Study of the science of medical nutrition therapy and evidence based practice in the nutritional management of disease during specific stages of the life cycle. Prerequisite: Consent of Instructor LEC.

**DN 796. Social and Cultural Aspects of Dietetics and Nutrition. 2-4 Hours.**
A study of the aspects of society, culture and personality related diet, food habits, and nutrition. The role of the community and its agencies will be considered. Includes field work. Prerequisite: Consent of instructor. LEC.

**DN 800. Selected Topics in Clinical Dietetics: ______ 1-6 Hours.**
A learner-centered, self paced study of topics in applied clinical dietetics. Independent modules are offered to address the science and art of nutritional care relating to specific issues to clinical dietetics. Topics will be grouped in various combinations to provide flexibility of choice. Students may enroll in one or more topics for a total of six credit hours. Prerequisite: By permission of instructor only. LEC.

**DN 810. Nutrition Assessment. 3 Hours.**
Methods and tools used in screening and assessment of nutritional status of individuals and population groups are studied. Assessment methodology includes dietary surveys, computerized dietary intake analysis, anthropometric measures, biochemical measures and clinical evaluations. Laboratory experiences are provided to allow students practice time for learning and applying assessment techniques. Prerequisite: Permission of instructor. LEC.

**DN 817. Seminar in Dietetics & Nutrition I. 1 Hour.**
Seminar designed to promote effectiveness of professional written and oral communication, increase knowledge of research, and review content information in selected topics in dietetics. LEC.

**DN 818. Seminar in Dietetics & Nutrition II. 1 Hour.**
To promote effectiveness of professional written and oral communication, to increase knowledge of research, and to review content information in selected areas in dietetics. SEM.

**DN 819. Scientific Writing for the Nutritional Sciences. 1 Hour.**
Research proposal preparation and / or scientific manuscript writing experience. This course will provide the student with an overview of the steps used in proposal writing and / or the steps in preparation of a scientific manuscript for publication. LEC.

**DN 820. Nutrition Education Skills for School Teachers. 3 Hours.**
This graduate level course will expand understanding of nutrition and healthy eating for classroom teachers and other professionals who work with children. The course has a special emphasis on child and adolescent nutrition and how to translate nutrition facts into classroom applications and school-based interventions. Course topics will include healthy food choices, nutrition guidelines, nutrients, energy balance and weight, child and adolescent nutrition, and nutrition education in the classroom, school-based nutrition interventions, and measuring outcomes of nutrition interventions. Prerequisite: Student must be classroom teacher or consent of instructor. LEC.

**DN 822. Management Dietetics & Nutrition I. 2 Hours.**
Managerial skills in health care quality improvement and food service are practiced. Students are typically enrolled in DN 827 Practicum supervised practice experiences associated with the dietetic internship. Prerequisite: food service systems or commensurate practical experience. LEC.

**DN 823. Management Dietetics & Nutrition II. 2 Hours.**
Managerial style is related to food policy, financial benchmarking and applied nutrition practice. Students are typically enrolled in DN 827 Practicum supervised practice experiences associated with the dietetic...
internship. Prerequisite: food service systems or commensurate practical experience. LEC.

DN 825. Medical Nutrition Therapy I. 3 Hours.
Course content introduces the student into the concepts of an intermediate study of nutritional therapy of disease. Course content includes evidence-based practice in prevention and nutritional management of diseases. Patient assessment and medical chart documentation are covered. Elements of pathology and biochemistry of the nutrition-related problems are integrated into course topics. This course is designed for students enrolled in the dietetic internship, but students from other departments may enroll with consent of instructor. Prerequisite: Undergraduate coursework in nutrition, diet therapy, biochemistry and physiology or consent of instructor. LEC.

DN 826. Medical Nutrition Therapy II. 3 Hours.
Course content includes current nutrition theory and evidence-based practice in prevention and treatment of disease. Advanced therapies and patient management in nutrition support will be discussed. Course topics include pediatric nutrition, obesity, cardiovascular disease, diabetes, cancer, renal disease, and gastrointestinal diseases. Elements of pathology and biochemistry of the nutrition-related problems are integrated into course topics. This course is designed for students enrolled in the dietetic internship, but students from other departments may enroll with consent of instructor. Prerequisite: Undergraduate coursework in nutrition, diet therapy, biochemistry and physiology; DN 825; or consent of instructor. LEC.

DN 827. Practicum in Dietetics and Nutrition. 1-10 Hours.
Supervised practice experience for graduate level students to fulfill the requirements for the Dietetic Internship. Experiences take place in hospitals, clinics, community health care agencies, and other practice settings in which dietetics and nutrition services are provided. Prerequisite: Admission to the graduate program, permission of dietetic internship director or course instructor. LEC.

DN 828. Clinical Education in Dietetics. 2-3 Hours.
A study of teaching methods appropriate for use in a clinical setting. Emphasis on development of instructional objectives, learning situations, and methods of evaluations to be used in clinical teaching in dietetics. Prerequisite: Consent of instructor. LEC.

DN 829. Nutrition and Aging. 3 Hours.
An overview of nutrition and the aging process. Physiological, psychological, and sociological aspects of aging, theories of aging, internal and external factors related to nutrient intake, and nutrient needs will be considered. LEC.

DN 830. Food Technology. 2-3 Hours.
Consideration of current food processing methods and the factors affecting the palatability and nutritive values of human foods. Course includes pertinent information regarding the protection of the food supply. LEC.

DN 834. Methods of Research in Nutrition. 3 Hours.
A study of basic research terminology and designs commonly used in nutrition research. Topics include: research on animals, tissue culture and human subjects; qualitative, quantitative and outcomes research; ethical issues in research; dissemination of research findings; and appropriate use of research findings. Prerequisite: Consent of instructor. Same as DIET 834. LEC.

DN 836. Biochemical, Physiological, and Genetic Aspects of Human Nutrition. 3 Hours.
The topics covered will examine the integration of biochemistry, physiology, genetics, and nutrition. Emphasis will be placed on developing an understanding of how the combination cellular structure and function is related to the metabolic needs of the cell and its response to the environment. The integrated approach will form a basis for evaluating nutritional needs in humans. Prerequisite: courses in nutrition, physiology, and biochemistry, or consent of instructor. Same as DIET 836. LEC.

DN 838. Advanced Medical Nutrition Therapy. 3 Hours.
This course evaluates current issues in medical nutrition therapy. Course content includes evidence based analysis, the role of diet in disease management including factors related to disease pathophysiology, nutritional assessment and medical nutrition management of specific disease states. Prerequisite: undergraduate medical nutrition therapy, biochemistry, physiology, or consent of the instructor. Same as DIET 838. LEC.

DN 839. Clinical Aspects of Nutrition Support. 3 Hours.
Specialized nutrition assessment and support. Review of energy expenditure and substrate utilization in specific disease states. Current methods for the initiation and management of enteral and parenteral nutrition therapy including access, metabolic and mechanical complications. Evaluation nutrition support methodology in selected disease states. LEC.

DN 840. Advanced Topics in Nutrition. 1-2 Hours.
Reading and preparation of a paper and/or oral presentation on a selected subject in nutrition. Prerequisite: Consent of instructor. LEC.

DN 841. International Nutrition. 1-3 Hours.
A study of global public health and nutrition concerns in various nations, assessment of nutritional status of diverse populations, international health and nutrition organizations, policies, and interventions. We explore the roles of dietitians, nutritionists, and others in creating and implementing international public health and nutrition policies and interventions. To enroll in the course, you must be a student in the Graduate Certificate Dietetic Internship Program, the Dietetics and Nutrition Master of Science Program, or the Great Plains IDEA, or have the consent of the instructor. Cross-listed with DIET 841. LEC.

DN 842. United States Public Health Nutrition. 1-3 Hours.
A study of US public health and nutrition concerns in diverse US populations, assessment of nutritional status in commonalities, health communication, nutrition policies and community based nutrition interventions. Exploration of the roles of dietitians, nutritionists, and others in developing and delivering nutrition policies and interventions in US communities. Prerequisite: Must be a student in the Graduate Certificate Dietetic Internship Program, the Dietetics and Nutrition Master of Science Program, or the Great Plains IDEA, or have the consent of the instructor. LEC.

DN 854. Special Problems in Dietetics and Nutrition. 1-4 Hours.
Directed study of special problems in nutrition or nutrition care. This course provides for the individual or group study of special problems. Through directed readings, investigations, and projects, the student acquires information with reference to questions in dietetics and nutrition not covered in organized courses. LEC.

DN 857. Motivational Interviewing in Public Health Settings. 1 Hour.
The course is designed to introduce participants to Motivational Interviewing, its concepts, and to the subsequent skills required for helping people to change. This course will be cross-listed with PRVM 857. LEC.

DN 860. Collaboration Strategies in Health Care. 1 Hour.
Persuasion and negotiation techniques: skills to evaluate and promote collaboration and goal achievement in a multidisciplinary health care team; analysis of communication styles and strategies to achieve mutual beneficial outcomes. LEC.
DN 862. Maternal and Child Nutrition. 3 Hours.
Critical examination of behavioral, physiological, and public health issues impacting dietary and nutritional factors that support normal growth and development. Course content focuses on the early stages of the life cycle: gestation, lactation, infancy, preschool, school age and adolescence. Topics include the fetal programming hypothesis, growth and nutritional requirements, breast and formula feeding of infants, infant weaning, and eating behaviors that lead to normal growth, growth faltering, and pediatric obesity. Prerequisite: Consent of the instructor. LEC.

DN 865. Nutrition in Sports and Exercise. 3 Hours.
Exercise physiology and nutrient requirements in sports and exercise: macronutrient, micronutrient and fluid needs of athletes engaged in specific sports, pre/post exercise meals, gender specific requirements, role of ergogenic aids, eating disorders, and role of exercise in weight management and chronic disease. Prerequisite: Biochemistry and/or exercise physiology class or permission of the instructor. LEC.

DN 870. Health Behavior Counseling. 3 Hours.
Theoretical and applied issues in health behavior counseling. Students will learn the theories of behavior change and how to apply these to health care issues. Specific health behaviors (i.e., dietary changes, smoking cessation, exercise adherence) will be discussed in the context of chronic disease for children, adults, and the elderly. Effective methods of counseling patients and promoting changes on an individual and small group basis will be presented. LEC.

DN 875. Pediatric Clinical Nutrition. 3 Hours.
Examines physiological, biochemical and nutritional aspects of disease processes relevant to infants and children up to 18 years of age. Medical nutrition therapy for a variety of medicine conditions found in this population will be discussed including inborn errors of metabolism, food hypersensitivity, obesity, and diseases of the major organ systems. Prerequisite: DN 826: Applied Clinical Nutrition or equivalent or consent of instructor. LEC.

DN 876. Intervention for the Prevention & Management of Obesity. 3 Hours.
This course emphasizes obesity in a population group ranging from childhood to the adult. Course materials will examine the impact of obese conditions on disease development throughout the life cycle. The course will critically analyze current evidence focused on interventions used in the behavioral and clinical management of overweight and obese individuals in community and clinical settings. Prerequisite: Consent of instructor. Same as DIET 876. LEC.

DN 880. Dietary and Herbal Supplements. 2-3 Hours.
Explores the safety and efficacy of botanical/herbal and dietary supplements in health applications including dietary supplementation in the prevention and treatment of chronic disease. Prerequisite: Human physiology is advisable. LEC.

DN 881. Introduction to Dietetics and Integrative Medicine. 3 Hours.
Introduction to principles guiding integrative and functional Medical Nutrition Therapy; assessing, diagnosing, intervening, monitoring, and evaluating an individual client to restore function; focusing on the unique nutritional imbalances characteristic of chronic disease pathophysiology; supporting individuals with persistent symptoms; preventing chronic disease. Prerequisite: Introductory genetics, medical nutrition therapy, or consent of instructor. LEC.

DN 882. A Nutrition Approach to Inflammation and Immune Regulation. 3 Hours.
Inflammation and immune system dysregulation is common in chronic disease. The course presents the integrative nutrition approach to identify the underlying causes of inflammatory and immune-related conditions and associated nutritional influences; applies individualized nutritional interventions, as powerful modulators of the pathophysiology of inflammatory and immune responses. Prerequisite: Medical nutrition therapy, genetics or consent of instructor. LEC.

DN 884. Diet, Physical Activity & Cancer. 3 Hours.

DN 885. Nutritional Biochemistry. 3 Hours.
Course content facilitates the understanding of advanced biochemical principles applied to human nutrition. Topics include protein structure, bioenergetics, enzyme function, nutrient digestion, absorption and metabolism, metabolic regulation and intermediary metabolism, cellular signaling, and genomics encompassing nucleotide metabolism, gene expression and gene regulation. Prerequisite: Undergraduate biochemistry or consent of instructor LEC.

DN 890. Graduate Research. 1-4 Hours.
Individual investigation of special problems in dietetics and nutrition or hospital dietary administration approved by the student's advisor or advisory committee. Investigation involves original research. RSH.

DN 895. Advanced Macronutrients and Integrated Metabolism. 3 Hours.
Energy containing macronutrients and fiber presented from the perspective of their importance in human nutrition. Structural properties, digestion, absorption and metabolism are emphasized. Fuel utilization in response to food intake and exercise, cellular and whole-animal energetic and energy balance integrate metabolism. Students take an active role in presenting and discussing and exhibit advanced skills in analysis and presentation. Prerequisite: BCHM 702 or Equivalent. LEC.

DN 896. Advanced Micronutrients and Integrated Metabolism. 3 Hours.
Vitamins and minerals presented from the perspective of their requirements as nutrients for normal human physiological functions with emphasis on their underlying roles in structure, function and metabolism. Students take an active role in selecting, presenting and discussing recent published research and to exhibit advanced skills in analysis and presentation. Prerequisites BCHM 702 or equivalent. LEC.

DN 897. Micronutrient Research in Human Nutrition. 1 Hour.
This course requires students to design a research study on a vitamin or mineral. Students submit a written proposal and present it orally and defend the proposal in class. Students will be evaluated on the basis of plausibility, feasibility and originality of the proposed research. Co-requisite DN 896. Prerequisite: Consent of Instructor. LEC.

DN 899. Thesis. 1-6 Hours.
Scholarly essay based on research, written under the guidance of the student's advisor. Credit given upon meeting thesis requirements for the master's degree. Prerequisite: Consent of advisor. THE.

DN 900. Techniques in Nutrition Research. 3 Hours.
A series of seven laboratory modules emphasizing quantitative methods and experimental analysis. The series of modules will be team taught by departmental faculty. Each module requires data collection, data analysis, and written interpretation or report. Instrumentation, dietary assessment software utilization and cellular microtechniques will be emphasized. Students will be responsible for learning one technique practiced in an outside laboratory setting. Student will rotate between the module sequence based on the number of students enrolled in the class.
Prerequisite: DN 895 and DN 896 or permission of instructor of record. LEC.

DN 901. Graduate Seminar in Nutrition. 1 Hour.
Advanced course examining current research topics in nutrition. Extensive student and faculty interaction is emphasized utilizing lectures, class discussion of selected scientific readings and oral presentations. Prerequisite: Admission to PhD program in Dietetics and Nutrition or permission of instructor. LEC.

DN 980. Nutrigenomics and Nutrigenetics in Health and Disease. 3 Hours.
Nuclear receptors and their mechanisms of action, nutritional control of gene expression and functional genomic studies with relationships to nutrient intake and polymorphisms. Prerequisite: DN 836, DN 895, DN 896 or permission of instructor. LEC.

DN 990. Doctoral Research. 1-9 Hours.
Original and independent investigation approved by and conducted under the supervision of the student's advisor or advisory committee. This course is in partial fulfillment of the requirements for the Ph.D. degree. Prerequisite: Corequisite: Restricted to Dietetics Nutrition Ph.D. candidates, or consent of DN advisor. Students must have completed the qualifying exam. LEC.

DN 999. Dissertation. 1-6 Hours.
Preparation of the written dissertation based upon original research and in partial fulfillment of the requirements for the Ph.D. degree. Prerequisite: DN 990 or consent of advisor. LEC.

Health Information Mgmt Courses

HEIM 210. Introduction to Healthcare. 1 Hour.
This course is an introductory overview of the healthcare system in the United States. The content includes information on the organizational structure of healthcare, the healthcare team, reimbursement, the importance of data quality, legal aspects of healthcare including privacy and security, and the electronic health record. This course is taught in a HYBRID format and requires access to a computer. Open to all students. LEC.

HEIM 230. Medical Terminology. 3 Hours.
A study of the language of medicine including word construction, definitions, medical abbreviations, and use of terms related to various areas of medical science and health professions. Course requires students to be able to break down medical terms and understand their meanings. This online course is designed for students interested in clinical and health professions. LEC.

HEIM 301. Health Information Management Orientation. 1-2 Hours.
This course is designed to prepare student for the HIM program, professional practice experiences and the HIM profession. Student will learn to apply communication, collaboration and project management skills. This course has a special emphasis on professionalism, self-awareness and critical thinking. Student will also focus on interprofessional education and working effectively in teams. LEC.

HEIM 325. Pharmacology. 2 Hours.
This introduction to pharmacology course is intended to provide the student with the background information necessary to practice within the field of Health Information Management. The course covers the fundamentals of pharmacology, including pharmacokinetics and pharmacodynamics. The classification of drugs, the use of drug reference materials, and the mechanisms of therapeutic and adverse responses to drugs will be covered in the course. This course will also introduce the processes used for drug approval in the United States. Prerequisite: Permission of the instructor. LEC.

HEIM 401. Introduction to Health Information Management (HIM). 3 Hours.
This course introduces students to the foundational concepts of health record content, characteristics and requirements, along with the operational processes designed to support and safeguard the healthcare data and information contained therein. Joint Commission survey process is also included. Industry standard software applications are used for applied, hands-on learning in this course. LEC.

HEIM 415. Healthcare Delivery Systems. 3 Hours.
This course provides an introduction to the wide spectrum of healthcare delivery systems in which health information management among other healthcare professionals use their organizational and management skills. Special emphasis is placed on acute care, ambulatory care, home health, hospice care, long-term care, and managed care. The student will focus on how each delivery system is structured, their function, what data sets are collected, the reimbursement schemes used, health policy that shapes the system, outcomes (cost, quality, access) and how each system is integrated into the current delivery of healthcare in the United States. LEC.

HEIM 420. Legal Aspects of Healthcare. 3 Hours.
This course introduces the student to some of the basic legal principles found in healthcare and health information management (HIM). Fundamentals of law including statutory, regulatory, and judiciary practices are reviewed in the context of HIM including tort and liability. Emphasis is placed on HIPAA regulations. Patient legal rights and responsibilities as related to their healthcare are included, as well as fraud and abuse prevention and compliance. The basics of corporate liability and contracts are also covered. LEC.

HEIM 435. Pathophysiology for Health Professionals. 3 Hours.
An in-depth study of the fundamentals of medical science, medical essentials and the language of medicine, signs, symptoms, and test findings of disease processes and the current therapy employed in the treatment of diseases. Prerequisite: Courses in Anatomy lab, Physiology lab, and Medical Terminology or consent of the instructor. LEC.

HEIM 450. Introduction to Professional Practices Experiences. 1 Hour.
This course is designed to prepare students and develop the skills required for experiences outside of the classroom environment. The emphasis is on professional behavior for health information management professionals in the workplace. The course also introduces students to the application of electronic health record concepts. The content is intended to prepare students for site visits, professional practice experiences, the internship, as well as their future careers. LEC.

HEIM 485. Independent Study in Health Information Management. 1-10 Hours.
The content will vary depending on material appropriate to students. May be repeated for additional credit utilizing a variety of projects and special assignments. Prerequisite: Permission of the program director. FLD.

HEIM 501. Information Resources for Health Professions. 1 Hour.
This course is designed to prepare students to effectively utilize information resources and technology on an academic medical center campus. Students will learn to apply computer skills, information technologies and literacy skills in an academic health care setting. The course also teaches students the foundations of information literacy - to recognize when information is needed, and to effectively locate, evaluate and use health information resources. Students will learn best practices to find the most relevant information using search strategies, databases (public and private), evaluative skills, and technology to apply and synthesize responses. Finally, this course will equip students with
successful presentation skills and guidance on communicating with social technology. LEC.

**HEIM 510. Professional Practice Experience / Lab I. 1 Hour.**
Through supervised learning situations, students are given opportunities to visit different types of healthcare facilities in the area. These opportunities vary from year-to-year based upon availability. Opportunities might include (but not be limited to) developing competence while practicing a specific HIM function in an actual HIM department, exploring nontraditional HIM career roles, or visiting with and interviewing a long term care, behavioral health, rehabilitation, or managed care HIM department manager. Prerequisite: Successful completion of Junior-level HIM academic courses or permission from instructor. LEC.

**HEIM 525. Healthcare Database & Architecture. 3 Hours.**
This course is designed to help students understand databases and database management systems. Students will learn to model and understand database design, in conjunction with learning methods to structure data as records, tables, or objects. Students will also learn how query languages are used for searching, sorting, reporting, and other “decision support” activities to best utilize the available data. Along with acquiring knowledge fundamental to management of the electronic health record (EHR), students will develop general technical knowledge to become capable health information professionals. LEC.

**HEIM 540. Health Information Systems. 3 Hours.**
This course will provide students the knowledge and competence required to manage healthcare and clinical information systems. Students will receive hands-on application of the system development lifecycle using project management concepts. LEC.

**HEIM 565. Healthcare Coding Systems I. 4 Hours.**
This course introduces classification systems and terminologies used in healthcare and the relationship of these systems to patient care, research, and reimbursement systems. Course content provides study and application of coding guidelines, conventions, and rules of coding systems. Prerequisite: HEIM 435 or permission of the instructor. LEC.

**HEIM 567. Quality and Performance Improvement in Healthcare. 3 Hours.**
This course provides instruction on the principles of quality (QI) and performance improvement (PI) in the context of healthcare. PI drivers, models, techniques, and processes are covered including workflow reengineering. QI program organization, management and effectiveness are addressed. This course also includes content on patient safety, risk management, resource management and assessment of provider competence. LEC.

**HEIM 570. Introduction to Healthcare Management. 1-3 Hours.**
This course introduces theoretical and applicable concepts of management with an emphasis on managing in healthcare organizations. Students explore traditional management roles as well as leadership concepts. Course content depicts management in the context of a complex stakeholder environment evidenced in the healthcare system of the United States. LEC.

**HEIM 571. Human Resource Management in Healthcare. 3 Hours.**
Through the course students will have the opportunity to obtain working knowledge of human resource management. Technology and the continuing uncertainty of the economy have affected many aspects of human resource management; a number of tasks formerly performed by an HR office are now the purview of department managers. The course will familiarize students with the environment in which HR functions and the tasks involved in managing people. Topics include: social sustainability, culture, vision, staffing needs analysis, recruiting and selecting, training, developing, retaining, motivating, and legal rights of the people within the rapidly changing business environment. Prerequisite: HEIM 570 Healthcare Management. LEC.

**HEIM 575. Applied Statistics and Research Methods in Healthcare. 3 Hours.**
Emphasis is on the statistical analysis of healthcare data. Content includes hospital-based statistics, an introduction to epidemiological concepts, research design and methodology, research ethics and protocol, hypothesis testing, data management, analysis and presentation. Prerequisite: MATH 365 Elementary Statistics, or similar. LEC.

**HEIM 585. Healthcare Reimbursements & Financing. 3 Hours.**
This course examines complex financial systems within the United States healthcare system. Students explore content related to healthcare financing, reimbursement, and revenue cycle management, to include regulatory and/or policy initiatives and operational considerations for healthcare organizations. Prerequisite: Accounting or permission from instructor. LEC.

**HEIM 604. Professional Practice Experience / Lab II. 2 Hours.**
Provides a laboratory/professional practice experience setting for the application of coding, reimbursement and revenue cycle management-related practices with potential opportunity to participate in interprofessional activities. This is a two-credit hour lab. Prerequisite: HEIM 565, HEIM 585, and HEIM 635 or permission of the instructor. LAB FL D.

**HEIM 635. Healthcare Coding Systems II. 3 Hours.**
This course offers continued study of classification systems and terminologies used in healthcare and the relationship of these systems to patient care, research, and reimbursement systems. This course includes an introduction to the role of mapping between the various classification systems, nomenclatures and clinical terminologies used in healthcare. Prerequisite: HEIM 565 or permission of the instructor. LEC.

**HEIM 661. Management Principles in Health Care. 3 Hours.**
Introduction to basic principles of management and education and their application in the current healthcare environment. Course content includes: management, quality issues, budgeting, personnel issues, evaluation and application of management concepts, and educational methodologies. Cross listed with CLS 661 and RESP 661. Prerequisite: Admission to the Health Information Management Program or permission of the instructor. LEC.

**HEIM 665. Topics in Health Information Management. 1-2 Hours.**
This course will utilize case studies and guest presentations to address the latest developments in the management of health information. Knowledge and skills will be applied to real-world problems. Students will examine key issues and trends within HIM through a series of seminar topics and presentations. LEC.

**HEIM 670. Independent Study in Health Information Management. 1-10 Hours.**
The content will vary depending on material appropriate to students. May be repeated for additional credit utilizing a variety of projects and special assignments. Prerequisite: Permission of the program director. LEC.

**HEIM 671. Strategic Leadership in Healthcare. 3 Hours.**
This course applies key concepts in personal, professional and organizational leadership for healthcare management. Special emphasis is on strategic leadership and planning for enterprise-wide health information strategies. Student will focus on leadership styles with an emphasis on self-discovery and professional development within an ever-changing environment. LEC.
HEIM 676. Healthcare Analytics. 3 Hours.
This course covers data-driven, computer-based tools and data analysis techniques that aid decision-making in healthcare. Effective use of data analysis increases the quality of strategic and operative planning and reduces the time used for decision-making processes. The course focuses on data-driven techniques and tools including such topics as medical coding systems, database fundamentals, business performance monitoring (managerial dashboards), and data mining applied to the healthcare industry. A number of data mining and predictive modeling approaches are discussed to address specific issues in healthcare. LEC.

HEIM 679. Information Governance in Healthcare. 3 Hours.
This course examines the role of health information managers as facilitators and champions of information governance in healthcare organizations. Course content includes an exploration of the topic of information governance, as well as introduces strategic considerations for enterprise processes, policies and procedures, standards, and metrics to support information governance efforts. Information is considered throughout the course as a strategic asset for organizational optimization. External users of information and related implications are also discussed. LEC.

HEIM 680. Management Internship. 3 Hours.
This internship experience provides the student with a management capstone experience in the activities and responsibilities of the health information administrator. Students are responsible for all costs to include: room, board, and transportation. Management sites are selected based on the experience and credentials of the student. Prerequisite: Successful completion of all HIM professional coursework and/or permission of the instructor. LEC.

HEIM 681. Management Practicum. 3 Hours.
This practicum experience provides the student with a management capstone experience in the activities and responsibilities of the health information administrator. The specific practicum topics are selected based on the experience and credentials of the student. Prerequisite: Successful completion of all HIM professional coursework and/or permission of the instructor. LEC.

Hearing and Speech Courses

AUD 805. Introduction to Clinical Research. 1 Hour.
The course will provide a comprehensive overview to clinical research. The student will gain an understanding of how to develop clinical research questions including protocol design and the factors that should be considered in initiating a clinical research study. This will include biostatistical considerations, the recruitment of study participants, regulatory issues, and data management, and defining measures and instruments. Students will gain knowledge of how to define clinical research among the various institutional entities involved with clinical research at the University of Kansas Medical Center such as the Research Institute (RI), General Clinical Research Center (GCRC) and the Human Subjects Committee (HSC). Additionally, one component of the course will focus on how to apply for funding (grantsmanship), critical appraisal of research studies, and how to present research data. Prerequisite: Consent of instructor. LEC.

AUD 810. Diagnostic Audiology. 4 Hours.
Audiometric calibration, pure tone and speech testing, analysis of audiograms, middle ear testing. Prerequisite: AUD 697. LAB.

AUD 811. Hearing Disorders. 3 Hours.
A study of disorders of the auditory system including anatomical, physiological, perceptual, and audiological manifestations of pathologies affecting hearing. Prerequisite: AUD 810 and AUD 829. LAB.

AUD 813. Psychoacoustics and Theories of Hearing. 3 Hours.
A study of relations between common acoustic stimuli and the responses they elicit; consideration of sensory scales, noise phenomena, and speech intelligibility. Prerequisite: AUD 697 and AUD 829. LEC.

AUD 814. Hearing Conservation. 2 Hours.
A study of the major components of hearing conservation programs in industrial, educational, and military settings. Forensic audiology issues related to occupational hearing loss are included. Prerequisite: AUD 697 and AUD 829. LAB.

AUD 816. Speech Perception. 2 Hours.
Acoustic and perceptual characteristics of phonemes, words, and connected speech for normal-hearing adults and infants; how speech perception is assessed clinically and is affected by hearing loss, aging, use of amplification, talker differences, and linguistic factors. LEC.

AUD 817. Pediatric Audiology. 3 Hours.
Normal and pathological development of the auditory system; pediatric audiometric testing; auditory and communication aspects in the habilitation of hearing-impaired children. Prerequisite: AUD 697 and AUD 810. LAB.

AUD 818. Vestibular Systems and Disorders. 3 Hours.
Study of the anatomy and physiology of the normal peripheral and central vestibular system; clinical assessment of vestibular disorders; vestibular rehabilitation. LEC.

AUD 819. Hearing Aids I. 3 Hours.
Study of the components, function, fitting, and performance characteristics of hearing aids, applications of amplification in rehabilitative audiology. Prerequisite: AUD 697 and AUD 810. LEC.

AUD 820. Rehabilitative Audiology and Counseling. 3 Hours.
Principles and methods of auditory, communication, and social assessment and intervention with hard of hearing and deaf adults, children, and their families. Prerequisite: AUD 810 and AUD 819 or equivalent. LEC.

AUD 821. Hearing Aids II. 3 Hours.
The advanced study of the theoretical bases, techniques, and clinical application of hearing aids and their assessment. Participants will review, present, and discuss contemporary issues in hearing aid literature and research. Prerequisite: AUD 819. LEC.

AUD 822. Electro-Acoustics and Instrumentation. 3 Hours.
A study of the generation, control and measurement of the simple and complex sounds essential to clinical audiology and hearing research. LAB.

AUD 823. Cochlear Implants and Hearing Assistance Technologies. 2 Hours.
Through lecture and discussion format, this course will cover the principles and methods of assessment, candidacy, surgery, programming and rehabilitation of patients receiving cochlear implants. In addition, hearing assistance technologies such as large area systems and alerting devices will be covered with emphasis on classroom amplification. Prerequisite: AUD 819 and AUD 821 or permission of instructor. LEC.

AUD 824. Central Auditory Processing. 2 Hours.
The study of the anatomy and physiology of the central auditory system. Analysis and review of the diagnostic procedures and the therapeutic strategies for central auditory processing disorders. LEC.

AUD 828. Genetics and Hearing Loss. 2 Hours.
The fundamentals of human genetics as related to hearing loss, including patterns of inheritance, genotypic and phenotypic characteristics of the major forms of syndromic and nonsyndromic hearing loss; genetic counseling, genetic testing, possible genetic treatment, and issues
related to them; resources for keeping up with this rapidly changing field. Prerequisite: Permission of instructor. LEC.

**AUD 829. Anatomy and Physiology of the Hearing and Vestibular Mechanisms. 3 Hours.**
Advanced study of the anatomical and physiological properties of the human hearing and vestibular mechanisms. LEC.

**AUD 843. Clinical Practice in Audiology. 1-6 Hours.**
Supervised clinical work at the University and/or University Medical Center audiology clinics, or affiliated, off-campus practicum sites. Prerequisite: Permission of instructor. FL.

**AUD 846. Independent Study in Problems in Audiology. 1-10 Hours.**

**AUD 851. Auditory Evoked Potentials. 3 Hours.**
Theoretical bases, techniques, and clinical applications for auditory evoked potentials including electrocochleography, auditory brainstem response, middle and late latency and cognitive responses. Prerequisite: AUD 810, AUD 822, AUD 829, or permission of instructor. LEC.

**AUD 853. Pharmacology for Audiology. 2 Hours.**
Presentation and discussion topics including: basic pharmacology (pharmacokinetics and pharmacodynamics), mechanisms of ototoxicity, selected ototoxic agents, drugs used in otolaryngology, and a review of patient management strategies. Prerequisite: Enrollment in the Au.D. or Ph.D. audiology program or permission of instructor. LEC.

**AUD 855. Business Audiology. 2 Hours.**
An introduction to audiology business practice principles. Operational functions of the audiology clinic will be reviewed, including human resources, marketing, legal and ethical practice concerns, billing, coding and reimbursement. Prerequisite: enrollment in the Au.D. or Ph.D. audiology program or permission of instructor. LEC.

**AUD 899. Thesis. 1-10 Hours.**
THE.

**AUD 940. Seminar in Audiology: ______. 1-4 Hours.**
Advanced study of selected topics in audiology such as (but not limited to): cochlear micromechanics and other physiological processes; psychoacoustics, speech perception, cochlear implants, etc. Prerequisite: Enrollment in the Audiology Ph.D. program or permission of instructor. LEC.

**AUD 941. Grand Rounds in Audiology. 1 Hour.**
Presentations/discussion of clinical case studies and professional issues in Audiology. Au. D. students and audiology faculty members will participate in these sessions. DIS.

**AUD 944. Clinical Rotation. 1-6 Hours.**
Supervised clinical work at the University and/or University Medical Center Audiology Clinics, or affiliated off-campus sites. The Clinic Rotation is intended to prepare students for entry into their Clinical Externship and foster increasing independence. Clinical skills required are defined in standards set forth by the American Speech-Language Association. FL.

**AUD 945. Clinical Externship. 1-9 Hours.**
Supervised clinical work at the University of Kansas and/or KUMC audiology clinics, or affiliated, off-campus sites. The Clinical Externship is intended to refine clinical skills, increase clinical independence, and ensure that clinical skills meet the certification standards in audiology set forth by the American speech-Language-Hearing Association. Open to 3rd and 4th year Au.D. students. Approval from Instructor needed for 3rd year students. PRA.

**AUD 999. Doctoral Dissertation. 1-12 Hours.**
THE.

**SLPD 801. Seminar on Evidence-Based Practice in Speech-Language Pathology and Other HealthSciences I. 3 Hours.**
This course is designed to give students a thorough understanding of evidence-based principles and procedures so that they could provide evidence-based services in a clinical setting. It is also designed to prepare students to assume a position of leadership in which they would be required to promote and teach evidence-based practices to their staff clinicians. Prerequisite: Consent of instructor. SEM.

**SLPD 804. Clinical Practice in Speech-Language Pathology: Advanced Training for the Experienced Clinician. 1-3 Hours.**
Students participate in clinical experiences (assessment and/or treatment) related to their primary and/or secondary area of concentration. Clinical experiences in which the student learns about a particular patient population, standardized and non-standardized assessment measures, instrumentation, computer software, devices, and/or treatment techniques and strategies are possible. Prerequisite: certification in speech-language pathology from the American Speech-Language-Hearing Association. CL.

**SLPD 805. Independent Study in Speech-Language Pathology. 1-3 Hours.**
Investigation of special topics by individual SLPD students. Prerequisite: Consent of Instructor. LEC.

**Nurse Anesthesia Courses**

**NURA 800. Professional Aspects of Anesthesia. 3 Hours.**
This course includes orientation to the profession of nurse anesthesia. The student will gain an understanding of the anesthesia department management and organization. The history of anesthesia will be discussed. Ethical, psychological, professional adjustments and legal responsibilities of the nurse anesthetist will be presented. LEC.

**NURA 801. Introduction to Clinical Practicum. 1 Hour.**
Students will engage in clinical practice that involves introduction to basic anesthesia skills. Emphasis is given to patient assessment, anesthetic planning and management of the patient population of low risk categories. The course includes introduction to clinical problem solving and “call” experiences that address the trauma patient and emergency surgical/anaesthetic interventions for pathological states. Prerequisite: Permission of Instructor. CL.

**NURA 805. Clinical Anatomy. 4 Hours.**
An intensive study of the major anatomical systems and regions of the body which have clinical significance for anesthetists and others. Particular attention devoted to the respiratory, cardiovascular, and nervous systems. Regional topics include the anatomy of the head, neck, vertebral column, thorax, axilla, and femoral triangle. Involves both lectures and cadaver dissection, plus appropriate models, x-ray films, and audiovisual materials. Prerequisite: Admission to the Nurse Anesthesia Program or permission of instructor. LEC.

**NURA 806. Advanced Physiology. 4 Hours.**
A course designed to lead to an advanced comprehension of the physiology of organ systems in the human in both cellular and organ processes. Physiology subject matter relevant to clinical health sciences include membrane transport, muscle, cardiovascular, respiratory, renal, water and electrolyte balance, gastrointestinal, and endocrine physiology as well as neurophysiology. Cellular mechanisms include the structure and function of ion channels and pumps, mechanisms of calcium regulation, excitation-coupling processes and mechanisms of oxidative cell damage and apoptosis. Prerequisite: Permission of instructor. LEC.
NURA 811. Advanced Theory in Anesthesia I. 2 Hours.
This is the first of five successive courses relative to the didactic study of the art and science of nurse anesthesiaology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of ophthalmology and otorhinolaryngology procedures and patients with alterations in the endocrine system. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify “best practices” based on research evidence. Prerequisite: Permission of Instructor. LEC.

NURA 812. Advanced Theory in Anesthesia II. 3 Hours.
This is the second of five successive courses relative to the didactic study of the art and science of nurse anesthesiaology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of critical care and trauma patients, acid base and electrolytes, and hematology needs of patients during surgical interventions. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify “best practices” based on research evidence. Prerequisite: Permission of Instructor. LEC.

NURA 813. Advanced Theory in Anesthesia III. 2 Hours.
This is the third of five successive courses relative to the didactic study of the art and science of nurse anesthesiaology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of obstetrical, neonatal and pediatric patients. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify “best practices” based on research evidence. Prerequisite: Permission of Instructor. LEC.

NURA 814. Advanced Theory in Anesthesia IV. 3 Hours.
This is the fourth of five successive courses relative to the didactic study of the art and science of nurse anesthesiaology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of neurosurgical, cardiovascular, thoracic, and transplantation patients. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify “best practices” based on research evidence. Prerequisite: Permission of Instructor. LEC.

NURA 815. Advanced Theory in Anesthesia V. 3 Hours.
This is the fifth of five successive courses relative to the didactic study of the art and science of nurse anesthesiaology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of the orthopedic patient and disease processes of the myoneuroskeletal disease processes, the geriatric and urological patient during surgical interventions. Students enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. In addition, students will be required to engage in analysis of currently published research to identify “best practices” based on research evidence. Prerequisite: Permission of Instructor. LEC.

NURA 820. Information Systems and Data Management in Anesthesia. 1 Hour.
Information systems, data management concepts, and their applications will be explored. This will enable the doctoral prepared nurse anesthetists to utilize resources to facilitate quality improvement, increase patient safety through outcome measurements, and improve resource utilization in the perioperative period. Prerequisite: Permission of instructor. LEC.

NURA 821. Advanced Practicum in Anesthesia I. 2 Hours.
This is the first of six courses relative to the application of the art and science of nurse anesthesiaology. Each section is designed to address specific surgical categories and the relevant patient care needs and risks. Completion of each course requires acquisition and refinement of clinical skills. Students will demonstrate progression in cognitive, psychomotor and affective skills appropriate to a professional nurse anesthetist. Prerequisite: Permission of Instructor. PRA.

NURA 822. Advanced Practicum in Anesthesia II. 2 Hours.
This is the second of six courses relative to the application of the art and science of nurse anesthesiaology. Each section is designed to address specific surgical categories and the relevant patient care needs and risks. Completion of each course requires acquisition and refinement of clinical skills. Students will demonstrate progression in cognitive, psychomotor and affective skills appropriate to a professional nurse anesthetist. Prerequisite: Permission of Instructor. PRA.

NURA 823. Advanced Practicum in Anesthesia III. 2 Hours.
This is the third of six courses relative to the application of the art and science of nurse anesthesiaology. Each section is designed to address specific surgical categories and the relevant patient care needs and risks. Completion of each course requires acquisition and refinement of clinical skills. Students will demonstrate progression in cognitive, psychomotor and affective skills appropriate to a professional nurse anesthetist. Prerequisite: Permission of Instructor. PRA.

NURA 831. Advanced Chemistry and Physics. 2 Hours.
Chemical and physical principles including states and properties of matter, laws governing the behavior of gases, flow and vaporization, oxidation and combustion; principles of electricity and electrical safety; and chemical properties and structure-activity relationships as a foundation for pharmacology. Course will also cover pertinent areas of organic chemistry. Prerequisite: Permission of instructor. LEC.

NURA 833. Basic Principles of Anesthesia Practice. 3 Hours.
This course introduces students to the introductory principles and theories regarding the art and science of anesthesia practice. Students will develop a conceptual basis for practice gained through a systems approach applied to development of anesthesia care based upon a strong foundation in physical assessment, physiological monitoring, applications of pharmacology, anesthesia systems, physical and chemical basic sciences. Prerequisite: Admission to the nurse anesthesia program or permission of instructor. LEC.

NURA 835. Advanced Physical Assessment and Patient Care Technology for Anesthesia. 3 Hours.
This course is designed to develop and refine the physical assessment skills of the practitioner as well as enhance their understanding, interpretation, and application of laboratory measurements and advanced diagnostic procedures in the perioperative setting. The course is arranged in a systems approach with emphasis placed on the cardiovascular, pulmonary, renal, neurological, and endocrine. Diagnostic procedures and laboratory values specific to each of these systems and their relevance to anesthesia principles and practice will be discussed. The selection of appropriate monitoring devices specific to each system related to individual patient needs will be discussed. Prerequisite: Permission of instructor. LEC.

NURA 838. Regional Anesthesia/Pain Management. 3 Hours.
Includes study of conductive anesthesia techniques, pharmacokinetics of local anesthetics, anatomical placement, and physiologic response. The course is inclusive of acute and chronic pain management techniques. LEC.
NURA 880. Advanced Topics: _____. 1-4 Hours.
Special study allowing a student to pursue a particular subject through readings, directed assignments, and conferences with a faculty member. Prerequisite: Consent of instructor. LEC.

NURA 889. Introduction to Theory, Research Methods and Evidence-Based Practice. 3 Hours.
Methods of theory development and analysis provide the foundation for the study of concepts and theories from nursing, anesthesiology and related scientific disciplines. Historical, scientific and philosophical frameworks relevant to the theoretical basis of nurse anesthesia are explored. The fundamentals of research methodology are examined including elements of design, measurement, statistical analysis and dissemination. The relationships between research, theory and practice are developed to create an awareness of how "best practice" resources support professional growth, competence and quality. Prerequisite: Permission of instructor. LEC.

NURA 892. Applied Statistics and Analysis in Health Care. 3 Hours.
Concepts include graduate-level statistical reasoning, statistical principles, and the role as the scientific basis for clinical and public health research and practice. Content includes hospital-based statistics, introduction to epidemiology, relationship of research design to statistical methods, research ethics/protocol, hypothesis testing, and data management. Prerequisite: Permission of instructor. LEC.

NURA 901. Evaluation and Application of Evidence-Based Practice in Anesthesia I. 1 Hour.
First of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor. LEC.

NURA 902. Evaluation and Application of Evidence-Based Practice in Anesthesia II. 1 Hour.
Second of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor. LEC.

NURA 903. Evaluation and Application of Evidence-Based Practice in Anesthesia III. 1 Hour.
Third of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor. LEC.

NURA 904. Evaluation and Application of Evidence-Based Practice in Anesthesia IV. 1 Hour.
Fourth of four courses in which the student will use analytic methods to critically appraise existing literature from nurse anesthesiology and other disciplines to determine and implement the best evidence for practice. An exploration of the design, implementation and evaluation of quality improvement methodologies will lead the student to an appreciation of the safe, effective, efficient and timely delivery of patient-centered anesthesia care. Previous student knowledge in the domain of research analysis will be applied to the design of evidence-based interventions in current anesthesia practice. Prerequisite: Permission of instructor. LEC.

NURA 912. Leadership in Nurse Anesthesia I. 1 Hour.
First of two courses which focus the students on leadership projects which were designed in NURA 800, Professional Aspects of Anesthesia. Students will apply a variety of leadership theories as they conduct the projects with nurse anesthesia faculty supervision. At the conclusion of NURA 913, students will evaluate the projects and determine if goals were met, recognize which principles of leadership theory(ies) were utilized in the projects, and prepare an action plan for revisions. Presentations and self-analysis of the projects will be posted as VOPPTs on the ANGEL course site. Prerequisite: Permission of instructor. FLD.

NURA 913. Leadership in Nurse Anesthesia II. 1 Hour.
Second of two courses which focus the students on leadership projects which were designed in NURA 800, Professional Aspects of Anesthesia. Students will apply a variety of leadership theories as they conduct the projects with nurse anesthesia faculty supervision. At the conclusion of NURA 913, students will evaluate the projects and determine if goals were met, recognize which principles of leadership theory(ies) were utilized in the projects, and prepare an action plan for revisions. Presentations and self-analysis of the projects will be posted as VOPPTs on the ANGEL course site. Prerequisite: Permission of instructor. FLD.

NURA 924. Advanced Practicum IV. 2 Hours.
Fourth of six clinically-based courses related to the art and science of advanced nurse anesthesia practice and care of patients with specialized anesthesia care. The courses are divided into sequential clinical practicum related to diverse patient types in both normal and abnormal states and for those requiring anesthesia care in specialized areas (cardiothoracic, obstetrics, neurosurgical, etc.) Participation in case presentations may be required as warranted by clinical events. An opportunity is provided to apply advanced clinical decision making skills and evidence-based research to the assessment, management, and evaluation of complex health care problems of a diverse patient population in the perianesthesia care setting. Prerequisite: Permission of instructor. PRA.

NURA 925. Advanced Practicum V. 2 Hours.
Fifth of six clinically-based courses related to the art and science of advanced nurse anesthesia practice and care of patients with specialized anesthesia care. The courses are divided into sequential clinical practicum related to diverse patient types in both normal and abnormal states and for those requiring anesthesia care in specialized areas (cardiothoracic, obstetrics, neurosurgical, etc.) Participation in case presentations may be required as warranted by clinical events. An opportunity is provided to apply advanced clinical decision making skills and evidence-based research to the assessment, management, and evaluation of complex health care problems of a diverse patient population in the perianesthesia care setting. Prerequisite: Permission of instructor. PRA.

NURA 926. Advanced Practicum VI. 2 Hours.
Sixth of six clinically-based courses related to the art and science of advanced nurse anesthesia practice and care of patients with specialized anesthesia care. The courses are divided into sequential clinical practicum related to diverse patient types in both normal and abnormal states and for those requiring anesthesia care in specialized areas (cardiothoracic, obstetrics, neurosurgical, etc.) Participation in
case presentations may be required as warranted by clinical events. An opportunity is provided to apply advanced clinical decision making skills and evidence-based research to the assessment, management, and evaluation of complex health care problems of a diverse patient population in the perianesthesia care setting. Prerequisite: Permission of instructor. PRA.

**Occupational Therapy (MS) Courses**

**OTMS 699. Special Projects. 1-6 Hours.**
An elective course to allow student investigation of special issues or problems relevant to applied research and/or practice, under the direction of a faculty member chosen by the student. Systematic coverage of current issues may include a research investigation or study related to pertinent sociocultural trends, practice factors, or emerging issues in service provision. Students will complete special projects such as oral presentations, written papers, or case analysis as negotiate with the faculty mentor. May be repeated for credit. Prerequisite: Enrollment as a non-degree seeking student and permission of the instructor. IND.

**OTMS 701. Professional Development. 3 Hours.**
With an emphasis on leadership skills and professionalism, this course will include mentoring, supervising, managing, organizing presentations, and teaching, writing, and contributing through professional organizations (interdisciplinary and occupational therapy). Students professional on issues of concern to administrators, staff therapists, educators, or those in private practice. Prerequisite: Permission of Instructor. LEC.

**OTMS 705. Multidisciplinary Theoretical Perspectives. 3 Hours.**
Students will identify and explore the key theories in occupational therapy and those more specific to their emphasis area with an emphasis on those currently influencing clinical reasoning. Students will demonstrate an understanding of contemporary theories and be able to compare and contrast key theories. Students will develop rationales for theory guided interventions. Furthermore, they will develop an impact summary in their identified area of emphasis. Prerequisite: Permission of Instructor. LEC.

**OTMS 735. Practice Models for Applied Science. 3 Hours.**
Issues and trends relative to advanced application of theory, assessment and intervention with emphasis on pediatrics will be presented in lecture and discussion. Special projects will emphasize the student's special interests. Although faculty directed, student presentation will be emphasized. LEC.

**OTMS 799. Special Topics in Occupational Therapy. 1-6 Hours.**
An elective course to allow student investigation of special issues or problems relevant to applied research and/or practice, under the direction of a faculty member chosen by the student. Systematic coverage of current issues may include a research investigation or study related to pertinent sociocultural trends, practice factors, or emerging issues in service provision. Students will complete special projects such as oral presentations, written papers, or case analyses as negotiate with the faculty mentor. May be repeated for credit. Prerequisite: Permission of instructor. IND.

**OTMS 800. Research Proseminar. 1 Hour.**
A proseminar conducted by the core graduate faculty in Occupational Therapy and Therapeutic Science. Twice-monthly meeting will involve student and faculty presentations of their current research, as well as provide more opportunities to obtain feedback on research proposals. May be taken more than once for a total of fours credits. (Same as TS 800.) RSH.

**OTMS 801. Applied Neuroscience. 3 Hours.**
The course will address the major functions of the systems within the central nervous system and how they interact to produce responses to environmental demands. Sensory input, central processing, and output mechanisms will be analyzed. The student will then appraise human behavior in relation to function and dysfunction of the nervous system, both in formulating potential behavioral signs when a specific neurological site is presented, and in hypothesizing about neurological involvement when analyzing a particular individuals problems. Prerequisite: Undergraduate neuroscience course or permission of instructor. LEC.

**OTMS 835. Interpreting Research for Applied Science. 3 Hours.**
This on-line course examines selected research studies, analysis methods and results employed, and applies research findings to practical problems. Students will design their own research project reflecting their area of interest. RSH.

**OTMS 890. Graduate Research. 1-6 Hours.**
Students investigate an empirical question relevant to occupational therapy and write a literature review and a research proposal under the guidance of a faculty advisor. Pending approval of the proposal, the student will carry out initial phases of the project, including materials preparation and data collection. RSH.

**OTMS 899. Thesis. 1-6 Hours.**
Course requires data analyses, interpretation, and scholarly writing based on individual original research carried out under the guidance of the student's adviser. These activities, along with an oral presentation of research, must meet with approval of the student's advisory committee to complete thesis requirements. Prerequisite: OTMS 890. THE.

**Occupational Therapy Courses**

**OCTH 601. Human Anatomy. 6 Hours.**
In OCTH 601, the study of gross anatomy and neuroanatomy in relation to human function and behavior will introduce students to how occupational therapists use anatomical knowledge to gather information about clients. Learning opportunities include lecture and laboratory. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

**OCTH 602. Orientation to the Occupational Therapy Profession. 3 Hours.**
In OCTH 602, we will examine occupation, explore the underlying philosophy and history of the occupational therapy profession, and implications for current practice and future directions. We will establish expectations for professionalism and practice application of ethical and professional behaviors within the context of occupational therapy practice. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

**OCTH 605. Theory and Practice in Occupational Therapy. 2 Hours.**
In OCTH 605, we will present established and emerging conceptual models of occupational therapy to guide students in exploration and discussion of assessment and intervention practices. Emerging professional reasoning skills and strategies will support individuals and small groups in synthesis and integration of theoretical concepts applied to diverse practice settings. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

**OCTH 622. Analysis and Adaptations of Occupations - I. 4 Hours.**
In OCTH 622, we will study the role of occupations and factors influencing occupational performance using the "top-down/bottom-up" analytic approach recommended by the WHO and reinforced by the OT Practice
Framework. This course will use service learning as the context for synthesizing an understanding of occupation, the occupational therapy process, and person-centered practice. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 630. Practicum - I. 2 Hours.
In OCTH 630, we will support students to experience and demonstrate person-centered and strength-based approaches when engaging individuals in their natural context, and to use observation, interview, and documentation skills to guide OT practice with children and families. Students will explore individual leadership strengths and styles to better understand individual roles within a complex system. Students as individuals and in small groups will undertake leadership assessment, reflection and application. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 635. Lifespan Development from an Occupational Perspective. 4 Hours.
In OCTH 635, we will examine in detail developmental theories and how they intersect with changes in occupations across the lifespan. We will promote an advanced understanding of participation in meaningful activities by practical experiences with real people in authentic settings. Students will gain an understanding and appreciation of the qualitative differences between typical and atypical occupational performance across the lifespan. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 645. Contexts of Occupation. 2 Hours.
In OCTH 645, contextual supports and features of physical, social, and other environments will be explored as potential tools to facilitate maintaining or enhancing occupational performance irrespective of disability status. The interaction of person, context, and environment will be explored through guided discussion, reflection, and extra-mural exploratory assignments. A culminating activity inspires teams of students to assemble course elements to develop a cohesive summary project with practical application. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 655. Neuroscience Analysis of Occupational Performance. 3 Hours.
In OCTH 655, we will build upon prior knowledge of neuroanatomy gained through OCTH 601. Principles of neuroscience will be interpreted in clinical application using a strength-based approach to advance understanding of nervous system function. The integration and function of neural systems will be considered in relation to specific challenges and capacity of the nervous system as a whole to support behavior. A practical application and problem-based perspective will be encouraged throughout the course, with students invited to consider consumer perspective and availability of potential supports. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 662. Physical Considerations in Facilitating Occupational Performance. 4 Hours.
In OCTH 662, we will appraise the impact of select medical conditions on person factors and occupational performance in everyday life using scientific reasoning. Students will implement occupational therapy assessment and intervention strategies integrated with knowledge of injury and disease processes to facilitate an understanding of occupational performance outcomes. Particular consideration will be given to addressing complex comorbidities within the context occupational performance. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 670. Practicum - II. 2 Hours.
In OCTH 670, we will employ the occupational therapy process, to participate in service provision to individuals through level f fieldwork experiences. We will build upon skills from OCTH 630 to advance leadership development and effective communication. This course will use both classroom and community-based practicum experiences. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 672. Psychiatric Considerations in Facilitating Occupational Performance. 3 Hours.
In OCTH 672, we will examine in detail occupational performance as influenced by psychological conditions using evidence-based practices and principles of mental health. We will emphasize the importance of considering individuals, groups and organizations with the context of occupational performance. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 680. Independent Study. 1-6 Hours.
An elective course to allow students to pursue areas of special interest under direction of faculty of his or her choice. Investigation of special issues relevant to an aspect of occupational therapy practice will include study of pertinent practice factors. Student will complete special projects relevant to the practice areas, such as oral presentation, written paper or case analyses. May be repeated for credit. Prerequisite: Permission of department and instructor (offered Spring, Summer and Fall). IND.

OCTH 682. Analysis and Adaptation of Occupations - II. 2 Hours.
In OCTH 682, we will support students in service learning settings to expand OCTH 622 task analysis outcomes to include the occupational therapy practice framework to further analyze and apply the occupational therapy process using person-centered practice. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 690. Evaluation and Assessment of Occupational Performance. 2 Hours.
In OCTH 690, we will examine in detail principles of the evaluation process to analyze occupational performance across the lifespan. We will differentiate, select, interpret, and document both formal and informal measures within a person-centered and contextually relevant approach. Prerequisite: Open to students enrolled in the MOT graduate program or those with permission from the OTEd department. LEC.

OCTH 704. Planning and Intervention in Occupational Therapy. 2 Hours.
This course will use professional reasoning to analyze cases across the lifespan. We will work in small groups using a problem-based format with faculty mentors as we develop an occupational profile, occupational analysis and evidence-based intervention plans for each case. LEC.

OCTH 710. Service Management: Delivery Systems. 1 Hour.
This course will explore how service delivery systems influence pragmatic reasoning and occupational therapy practice. We will examine American and global health care systems along with occupational therapy health care delivery settings with a focus on quality, cost, and access related to service delivery. Teaching and learning experiences occur through lecture, on-line materials, class discussion and small group activities. LEC.
OCTH 715. Supervision, Team Relations, and Management Communication. 1 Hour.
This course emphasizes entry level skills related to supervision, teamwork, and communication within practice environments. LEC.

OCTH 720. Occupational Therapy Practice Models. 7 Hours.
This course will use practice models to guide evaluation and intervention in occupational therapy practice. Students will gain an understanding of historical and contemporary models, learn the evidence underlying each model and conduct assessments with a consumer from each of the contemporary models. LEC.

OCTH 725. The Research Process. 1 Hour.
This course will transition from understanding and appraising research (OCTH 783) to generating research (OCTH 790). The purpose of this course is to guide students through planning research by introducing the components of research and describing ways in which research may be conducted. The course reviews research ethics, writing research questions and hypotheses, sampling, measurement and data collection, components of quantitative and qualitative research, and information about disseminating research. LEC.

OCTH 730. Practicum III. 2 Hours.
This course will build upon practicum and level I fieldwork experiences to continue developing necessary skills for level II fieldwork experiences. We will determine the relevant variables for intervention, work collaboratively with others within each setting, analyze, and reflect upon the experience. We will analyze principles of evidence-based practice and occupation-based intervention. LEC.

OCTH 738. Special Topics in Practice. 1-2 Hours.
Focused study of theory application, professional topics and skills, and emerging practice questions. Learning experiences may be in the form of guided readings and discussion, directed projects, seminars, or community/clinical experience with focus on advanced supplemental or exploratory learning. Specific topics and formats will vary as they are generated by student interest and faculty expertise. LEC.

OCTH 750. Case-Based Clinical Reasoning. 2 Hours.
This course will apply the professional reasoning process to understand individuals' occupational performance and analyze services provided based on cases from level II fieldwork experiences. We will participate in small group discussion using a problem-based format to conduct case analysis and develop evidence-based intervention plans. LEC.

OCTH 755. Issues and Trends Seminar. 1 Hour.
This course will analyze key professional, political, and cultural issues and trends that impact service provision and the populations served by occupational therapists. This seminar format incorporates student-driven service experiences, discussion forums, and small group work to examine issues/trends and recognize opportunities to shape the future of the occupational therapy profession. LEC.

OCTH 760. Professional Development and Leadership in Service Management. 3 Hours.
This course will discuss professional responsibilities and career development opportunities as they relate to leadership, administration, and management of occupational therapy services. We will use reflective assessments to identify professional leadership strengths and career paths. Students working in small work groups will apply management principles to develop and propose community-based health promotion programs. LEC.

OCTH 765. Family and Community Service Systems. 2 Hours.
This course will use professional reasoning to examine occupational practice within various delivery systems. We will use lecture and small group seminars to analyze systems from level II fieldwork experiences and develop a program evaluation plan based on collaborations between students and fieldwork supervisors. LEC.

OCTH 770. Level II Fieldwork, Part 1. 6 Hours.
A required full-time, three-month supervised experience in a facility meeting specified criteria. Qualified occupational therapists supervise the experience. Students will be exposed to a variety of age ranges and disabilities within different service delivery systems. Prerequisite: Satisfactory completion of required academic coursework. LEC.

OCTH 775. Level II Fieldwork, Part 2. 6 Hours.
A required full-time, three-month supervised experience in a facility meeting specified criteria. Qualified occupational therapists will supervise this experience. Students will be exposed to a variety of age ranges and disabilities within different service delivery systems. Ages, disabilities, and service provision systems for this course will differ from the student's prior fieldwork experience. Prerequisite: Satisfactory completion of required academic coursework. LEC.

OCTH 776. Population-Based Clinical Reasoning. 3 Hours.
This course will consider population-based concepts and theories to identify, prioritize and meet the health and life participation needs of populations. Within an interprofessional online learning context, students collaborate to develop community-based assessment and intervention emphasizing promotion, maintenance and restoration of health and wellness and disease prevention for specific populations. LEC.

OCTH 780. Elective Level II Fieldwork. 3-6 Hours.
An elective (optional) supervised experience in a facility meeting specific criteria. Qualified occupational therapist will supervise this experience. This fieldwork would allow students to pursue areas of special interest. Length and time commitment of experience will be commensurate with credit hours (e.g. each credit requires 80 hours of fieldwork contact at specified site). Prerequisite: Satisfactory completion of required academic coursework and OCTH 770. LEC.

OCTH 783. Evidence-Based Practice. 2 Hours.
This course will review, appraise, and integrate various levels of evidence to inform occupational therapy practice. Students will learn how to find relevant evidence as well as what factors should be considered in the assessment of evidence. We will review statistics and their use in interpreting outcome data. Students will also learn to synthesize and translate evidence into useful information for practice. LEC.

OCTH 790. Research Practicum and Professional Writing. 3 Hours.
This course will explore how the process of conducting a faculty-mentored research project becomes a platform for developing occupational therapy principles and for guiding practice, and how conveying meaning through professional writing is essential for communicating outcomes, interpretations, and instructions. Prerequisite: OCTH 727. Students from programs outside the MS in Occupational Therapy or PhD in Therapeutic Science need to contact the Occupational Therapy Department for permission to enroll. LEC.

OccupationalTherapy(Doctorate) Courses

OTD 750. Clinical Reasoning and Problem Based Learning. 3 Hours.
Students will apply a clinical reasoning process to individuals with occupational performance needs. Cases will be presented from students' clinical experiences. In a problem solving format, students will evaluate models of service delivery, evaluation and intervention delivery and dissemination of information received by the individual. Students will identify and discuss alternatives given a variety of situations and environments. PREREQUISITE: Permission of Department. LEC.
OTD 770. Knowledge For Specialty Practice Area. 3 Hours.
This course is designed to support and correspond with OTD 780. Students will be matched with a faculty mentor as they develop a literature review in an area of clinical interest. This experience is designed to supplement students' ongoing clinical practice as they develop a library of pertinent empirical readings. Students will be mentored as they develop skills in analytical reading and identification of information that informs best practice. PREREQUISITE: Admission to OTD Program or Permission of Instructor. LEC.

OTD 776. Population Based Health Care. 3 Hours.
This course will coordinate with OCTH 776. The purpose of this course is to introduce concepts and theories related to providing health care to complex systems and aggregates in the community, state and nation. Emphasis is placed on the promotion, maintenance and restoration of health and wellness and the prevention of disease. Internal and external environmental components which include historical, political, social, cultural and economic factors are presented. The role of the health care provider in identifying, prioritizing and meeting the health and life participation needs of aggregates is discussed. PREREQUISITE: Permission of department. LEC LEC.

OTD 780. Practicum in Specialty Practice Area. 3 Hours.
This course is designed to support and correspond with OTD 770. Students will complete this course as they work in a clinical environment. They will meet with a faculty mentor to support the analysis and dissemination of their empirical information gathered during OTD 770. They will present their empirical literature findings to their professional colleagues via a clinical research forum. Students will be expected to create three forms of information dissemination and critically review the professional feedback they receive. PREREQUISITE: Permission of department. LAB.

OTD 783. Evidence Based Practice. 3 Hours.
This course will coordinate with OTCH 783. Students will address the parameters and criteria for evidence-based practice. They will build a library of information that facilitates their evaluation of the status, beliefs, and practice of Occupational Therapy. They will develop skill in the synthesis of empirical evidence and explore dissemination options to service recipients. Students' work will culminate in the formulation of a decision-making paradigm for their future practice decisions. PREREQUISITE: Permission of Department. LEC.

OTD 799. Practice and Research. 3 Hours.
This is an elective course that allows students to pursue areas of special interest under the direction of a faculty member of his or her choice. This course is designed to support students' learning as they complete their pre-doctoral studies. Investigation of special issues relevant to an aspect of occupational therapy practice will include study of pertinent practice factors. Students will complete special projects relevant to the practice areas of interest, such as an oral presentation, written paper, or case analysis. May be repeated for credit. PREREQUISITE: Permission of Department. LEC.

OTD 825. Qualitative Research Methods. 3 Hours.
This course is an introduction to qualitative research techniques. Students will have several opportunities to gain hands-on experience using fundamental qualitative research techniques to sharpen their data collection, analysis and write-up skills. The goals of this course are to better understand the role qualitative techniques play in research, identify various ethical issues, sharpen interview and observation skills, and develop foundation skills for collecting, analyzing and interpreting qualitative data. Prerequisite: Permission of Department. Lecture course. LEC.

OTD 835. Quantitative Research for Applied Science. 3 Hours.
Research relevant to therapeutic intervention comes from a variety of disciplines involving varied research designs and analysis strategies. Students in this course will examine selected research studies and gain skill in analyzing methods and results as well as in applying research findings to practical problems. Students will conduct a systematic review on a specific area of occupational therapy practice. LEC.

OTD 850. Teaching Practicum. 1-3 Hours.
The purpose of this course is to provide practical learning whereby students receive individual mentorship for the development, implementation and evaluation of a teaching experience. Students will be responsible for developing the material, instructing students, grading assignments and evaluating the teaching experience. The teaching experience is expected to include at least 12 hours of face to face instruction (or the equivalent in on-line teaching or written materials). Teaching experiences can include MOT program lectures or labs, continuing education workshops, patient education programs, or staff inservices or another experience that meets the time and competency requirements. Prerequisite: A graduate level teaching methods course such as NSG 873, NSG 874, C T 740, C T 840 PRA.

OTD 860. Theory and Practice in Occupational Therapy. 3 Hours.
This course will cover major theoretical frameworks and practice models in occupational therapy. The history of occupational therapy will be included to provide a basis for understanding the evolution of the profession as well as past and current issues and trends. Students will learn how to critically analyze theories, evaluate research evidence related to specific theories and practice models, and assess pragmatic issues in applying practice models to specific settings and populations. LEC.

OTD 865. Theory Based Practice. 3 Hours.
This course is designed to critically review Occupational Therapy theories, research, practice models and frameworks using the tenets of occupation based practice. Students will analyze seminal literature from occupational science and relate theory and evidence to practice. Students will review their specified area of practice to develop a proposed method of practice that incorporates empirical evidence and practice methods. Finally, students will select a mentor from their practice area to review their proposal. Critical feedback will be incorporated into a final presentation and paper. PREREQUISITE: Permission of Department. LEC.

OTD 875. Professional Development. 3 Hours.
This course will explore professional development from an advanced practice perspective. Students will examine aspects of advanced practice such as leadership (both work and professional), management, group and system communication and change agency. They will explore these topics within their current practice settings and select an area of advanced skills to explore in more depth. Students will develop an understanding of how they can impact systems and contribute to the development of the occupational therapy profession. LEC.

OTD 880. Program Evaluation. 3 Hours.
Leadership in areas of specialty practice will require our graduates to critically evaluate their practice programs. In this course, students will explore the traditional and innovative ways to evaluate professional services and systems, and they will develop skills to conduct program evaluations. Students will examine the purpose and process of program evaluations in a variety of clinical settings. Through lecture, discussion and a project they will develop and execute a program evaluation in their area of practice. PREREQUISITE: Permission of Department. LEC.

OTD 885. Advanced Practicum. 1-3 Hours.
This practicum is designed to span 400 hours. Students will identify an area of practice through which they want to develop clinical initiatives
and leadership. Selected field experiences will provide opportunities for program development, leadership, and information dissemination. Upon completion, the students will provide his or her clinical team with a program, or research based initiative, along with specified program evaluation methods. PREREQUISITE: Permission of Department and continuous enrollment until completion of competencies. LAB.

OTD 890. Capstone Project. 1-3 Hours.
The capstone project will comprise a written report that involves both literature and field research activity. A capstone project report represents the application of knowledge as well as the search for it, and differs from a thesis such that student opinion and experience is involved. The student must negotiate capstone objectives, evaluation standards and any potential approvals prior to his or her practicum. PREREQUISITE: Permission of Department and continuous enrollment until competencies totaling 6 credit hours are completed. IND.

OTD 899. Special Projects. 3 Hours.
This is an elective course that allows students to pursue areas of special interest under the direction of a doctoral faculty member of his or her choice. This course is designed to support doctoral training. Academic options range from research based studies and/or activities to critical analysis of clinical practice methods. Students will complete special projects relevant to their designated practice area of interest. Students must negotiate learning objectives, academic projects and evaluation standards with their mentor. May be repeated for credit. PREREQUISITE: Permission of department. LEC RSH.

Physical Therapy Rehab Sci Courses

PTRS 701. Professional Interactions. 1 Hour.
Introduces the student to the physical therapy profession and professional role expectations. The history of physical therapy as it relates to the professionalization process, including ethical and legal obligations, as well as student responsibilities. It also addresses the development of effective communication and interpersonal skills and appreciation for individual and cultural differences within clinical settings. Professional responsibilities in physical therapy are introduced, including codes of ethical conduct and awareness of appropriate professional behaviors directed by organizational and legislative regulations. The development of medical terminology recall and recognition skills is also covered in the course. Prerequisite: Admission into the DPT program or permission of instructor. LEC.

PTRS 702. Physical Therapy Documentation and Health Informatics. 1 Hour.
Emphasizes the development of effective documentation skills, including exposure to a variety of documentation formats across various practice setting and implications for proper reimbursement. Concepts of healthcare informatics are introduced including use of an electronic documentation systems and the capability of information systems to support quality care. Disablement classification models, behavioral objectives, and functional outcome concepts are applied to organize patient data and identify treatment goals. Prerequisite: Successful completion of semester 1 of the DPT curriculum or permission of instructor. LEC.

PTRS 703. Applied Anatomy. 1 Hour.
This course introduces the learner to how physical therapists use anatomical knowledge to gather basic examination information about the patient. Learning opportunities include lecture and laboratory. Prerequisite: Admission into the DPT program or permission of instructor. LEC.

PTRS 704. Physical Therapy Interventions I. 3 Hours.
Skills required by the physical therapist in the generalist acute care environment. A series of patient care related lectures, demonstrations, videotapes and laboratories are integrated to teach proper body mechanics, infection control and sterile technique, basic assessment, transfers, positioning, tubes, ostomies, clinic safety procedures, tilt table usage, prescribing a proper wheel chair, applying proper therapeutic range of motion exercises, and using appropriate assistive devices for gait and transfers. Prerequisite: Successful completion of semester 1 of the DPT curriculum or permission of instructor. LEC.

PTRS 705. Physical Therapy Interventions II. 4 Hours.
Students will apply the skills obtained in clinical coursework and begin clinical problem-solving using common physical therapy treatment interventions. Topics include integumentary management for wound healing interventions, therapeutic modalities with an emphasis on the healing process and electrical modalities. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of the first 2 semesters of the DPT curriculum or permission of the instructor. LEC.

PTRS 710. Advanced Topics in Human Anatomy. 6 Hours.
The student will obtain a basic understanding of human gross anatomy with specific knowledge of upper and lower extremities, head and neck, back and neural structures. At the end of this course the student will be able to apply this knowledge of anatomy to functional and clinical situations. Prerequisite: Admission into the DPT program or permission of instructor. LEC.

PTRS 711. Applied Kinesiology and Biomechanics. 4 Hours.
This course involves a study of joint structure and function, and biomechanical principles underlying human motion. Emphasis is placed on the application of kinesiological principles to clinical physical therapy situations. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of semester 1 of DPT curriculum or permission of instructor. LEC.

PTRS 712. Pathophysiology and the Physical Therapy Diagnosis. 4 Hours.
Review of integrative human physiology and pathophysiology with an emphasis upon homeostatic mechanisms and etiologies of disease. The interrelationships of function and dysfunction at the molecular, cellular and tissue level (pathology), organ and systemic level (impairment) and to the total human body (functional limitations) will be applied in each of the body systems. Discussions and applied materials will be tailored to the physical therapist with an emphasis on PT-specific diagnoses. Prerequisite: Admission into the post-professional DPT program, or consent of instructor. LEC.

PTRS 715. Applied Musculoskeletal Anatomy. 3 Hours.
The course involves a study of joint structure, joint function, and the biomechanical principles underlying human motion. All major peripheral joints and the spine will be studied. Application of functional anatomy to clinical physical therapy situations will be emphasized. Prerequisite: admission into post-professional DPT program, or consent of instructor. LEC.

PTRS 720. Integrated Clinical Experience I. 1 Hour.
This course consists of supervised experiences in a clinical setting and seminar sessions that provide preliminary opportunities for application of didactic course work. Emphasis will be placed on the development of communication and interpersonal skills in the clinical setting, as well as documentation and physical therapy skills and procedures that have been introduced in courses. Prerequisite: Successful completion of semester 1 of the DPT curriculum or permission of instructor. CLN.

PTRS 730. Integrated Clinical Experience II. 1 Hour.
This course consists of supervised experiences in a clinical setting and seminar sessions that provide preliminary opportunities for application of didactic course work. Emphasis will be placed on the development of
communication and interpersonal skills in the clinical setting, as well as documentation and physical therapy skills and procedures that have been introduced in courses. Prerequisite: Successful completion of the first 2 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 740. Evidence-Based Orthopedic Rehab. 3 Hours.

Students will apply the concepts taught in PTRS 715 (Applied Musculoskeletal Anatomy) and skills obtained in their individual clinical practice. This course will include discussion related to current treatment approaches effecting peripheral and spinal joints. The course activities include review of the current evidence based scientific literature related to orthopedic conditions and interventions, web-based discussion related to individual patient case scenarios and lab activities associated with treatment techniques including mobilization/manipulation, self-mobilization and therapeutic exercise. Prerequisite: Entry into post-professional DPT program or permission of instructor. LEC.

PTRS 745. Orthopedic Physical Therapy I. 6 Hours.

Builds on the foundation from anatomy, kinesiology and biomechanics. Examination skills and treatment interventions that apply specifically to the musculoskeletal system are provided. Basic examination skills for all peripheral joints, gait analysis, and therapeutic exercise are discussed and reviewed for common orthopedic conditions. The course will integrate instruction with case-based clinical problem solving. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of the first 2 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 746. Musculoskeletal Conditions and Management. 3 Hours.

Mastery of physical therapy subjective and objective examination and treatment intervention for patients of all ages who present with a musculoskeletal problem with emphasis on amputation, prosthetics, upper and lower extremity orthoses, fracture management and connective tissue disorders. Emphasis will be placed on the most common clinical problems and physical therapy diagnoses. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of the first 2 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 750. Research in Evidence-Based Physical Therapy Practice. 3 Hours.

An introduction to research in the evidence-based physical therapy practice including the Scientific Method, library and multimedia resources, research process, measurement theory (reliability and validity), research designs, experimental design principles, research ethics, critical review and analysis of research publications, statistical concepts, and writing of a research report and/or research proposal. Throughout, emphasis is placed on clinical research pertinent to physical therapy. Prerequisite: Successful completion of the first 2 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 817. Ethics in Health Care. 2 Hours.

Basic ethical concepts, principles, relevant theories and ethical decision making models applied to major contemporary health care issues and dilemmas facing health professionals. Development of skills for ethical clinical decision making is the focus. Prerequisite: Successful completion of the first 3 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 820. Integrated Clinical Experience III. 2 Hours.

This course consists of supervised experiences in a clinical setting and seminar sessions that provide intermediate opportunities for application of didactic course work. Emphasis will be placed on the development of communication and interpersonal skills in the clinical setting, as well as documentation and physical therapy skills and procedures that have been introduced in courses. Prerequisite: Successful completion of the first 3 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 825. Exercise Physiology. 3 Hours.

This course will provide entry-level DPT students with the knowledge of the physiological functions and adaptations of the human body with exercise. Emphasis will be placed on familiarizing students with sound medical rationale and the basis for treatment considering the immediate and long-term effects of exercise. Prerequisite: Successful completion of the first 3 semesters of the DPT curriculum, or consent of the instructor. LEC.

PTRS 826. Cardiopulmonary Physical Therapy. 4 Hours.

Anatomy, physiology and pathophysiology of the cardiovascular and pulmonary systems are studied and related to clinical signs and symptoms. Students are introduced to common evaluation and treatment techniques, as well as the rationale for including physical therapy in the management of cardiopulmonary conditions. These topics are discussed in conjunction with case studies and current research. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of the first 5 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 828. Medical Imaging. 1 Hour.

An introduction to medical imaging and an overview of its role in the health care delivery system. Topics include an introduction to basic imaging equipment with an emphasis on digital acquisition and processing. Factors affecting the quality of images and limitations to the techniques are reviewed. Imaging techniques covered include: X-rays, CT scans, Nuclear medicine, ultrasound, MRI and PET. This course will also include a component covering the microscopic anatomy of cells. Prerequisite: Admission to the DPT program or permission of instructor. LEC.

PTRS 830. Integrated Clinical Experience IV. 3 Hours.

This course consists of supervised experiences in a clinical setting and seminar sessions that provide intermediate opportunities for application of didactic course work. Emphasis will be placed on the development of communication and interpersonal skills in the clinical setting, as well as documentation and physical therapy skills and procedures that have been introduced in courses. Prerequisite: Successful completion of the first 4 semesters of the DPT curriculum or permission of instructor. LEC.

PTRS 832. Health Promotion Through the Lifespan. 2 Hours.

This course focuses on the role of the physical therapist in health promotion across the lifespan and in specific populations. Prerequisite: Successful completion of the first 5 semesters of the DPT curriculum, or permission of instructor. LEC.
**PTRS 833. Pediatric Physical Therapy. 3 Hours.**

This course introduces fundamental concepts necessary for the entry-level physical therapist to examine, evaluate, and treat the pediatric client. Lecture and lab experiences emphasize a problem-oriented approach to physical therapy management of children with musculoskeletal, neurological, and/or cardiopulmonary impairments. Students will learn to recognize components of normal and abnormal development, particularly during the first year of life. Prerequisite: Successful completion of the first 5 semesters of the DPT curriculum or permission of instructor. LEC.

**PTRS 835. Rehabilitation Administration I. 3 Hours.**

The first course of two three-credit hour management classes designed to review the American health care system as a whole, and to examine the specific areas that rehabilitation health care managers must understand in order to succeed in an increasingly competitive and financially driven system. Some of these areas include the system of health care delivery, legal issues, human resource principles, accounting, reimbursement, payors, Medicare/Medicaid, regulations, outcomes information management, etc. This course will apply all of the above items to real world examples in numerous health care settings so the student understands the complexities of many settings which physical therapy personnel may work. Each unit will build on the last so that at the end of the second management course the student will be capable of proposing, building, opening, and successfully running rehabilitation services in a multitude of settings. Prerequisite: Admission into the post-professional DPT program, or consent of instructor. LEC.

**PTRS 836. Rehabilitation Administration II. 3 Hours.**

The second course of two three-credit hour management classes designed to review the American health care system as a whole and to examine the specific areas that rehabilitation health care managers must understand in order to succeed in an increasingly competitive and financially driven system. Some of these areas include the system of health care delivery, legal issues, human resource principles, accounting, reimbursement, payors, Medicare/Medicaid, regulations, outcomes information management, etc. This course focuses on reimbursement, legal and regulation issues and will apply presented principles to real world examples in numerous health care settings so the student understands the complexities of many settings in which physical therapy personnel may work. Each unit will build on the last so that at the end of the second management course the student will have the tools to propose, build, open and successfully run rehabilitation services in a multitude of settings. Prerequisite: Admission into the post-professional DPT program, or consent of instructor. LEC.

**PTRS 838. Research Concepts in Evidence-Based Physical Therapy Practice. 3 Hours.**

An applied research course with emphasis on evidence-based physical therapy practice including library and multimedia resources, research process, measurement theory (reliability and validity), research designs, experimental design principles, research ethics, critical review and analysis of research publications, writing of a research report and/or research proposal, and statistical concepts and data analysis. Throughout, emphasis is placed on clinical research pertinent to physical therapy. Prerequisite: Admission into the post-professional DPT program, or consent of instructor. LEC.

**PTRS 839. Advanced Topics in Pediatric Practice. 2 Hours.**

This web-based course will involve study of current clinical decision-making frameworks, service delivery models, and treatment approaches for children age birth through 21 with or at risk for developmental delay and/or disability. Course activities will include review of current scientific literature and online discussion of individual patient case scenarios. Prerequisite: For the DPT program: successful completion of PTRS 833 or consent of instructor. For the post-professional DPT program: admission into the program or consent of instructor. LEC.

**PTRS 840. Integrated Clinical Experience V. 3 Hours.**

This course consists of supervised experiences in a clinical setting and seminar sessions that provide intermediate opportunities for application of didactic course work. Emphasis will be placed on the development of communication and interpersonal skills in the clinical setting, as well as documentation and physical therapy skills and procedures that have been introduced in courses. Prerequisite: Successful completion of the first 5 semesters of the DPT curriculum or permission of instructor. LEC.

**PTRS 845. Orthopedic Physical Therapy II. 6 Hours.**

Incorporates concepts from anatomy, kinesiology, basic biomechanics and knowledge of peripheral joint examination and treatment. Terminology, examination, evaluation, development of a treatment plan and treatment techniques and basic differential diagnosis skills for the spine and the temporomandibular joint (TMJ) are taught. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of the first 4 semesters of the DPT curriculum or permission of instructor. LEC.

**PTRS 846. Orthopedic Physical Therapy III. 3 Hours.**

Incorporates concepts from anatomy, kinesiology, biomechanics, and Orthopedic Physical Therapy I and Orthopedic Physical Therapy II courses. Terminology, examination, evaluation, development of a treatment plan and treatment techniques and advanced differential diagnosis skills for complex peripheral and/or spinal disorders are taught. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of the first 6 semesters of the DPT curriculum or permission of instructor. LEC.

**PTRS 851. Lifespan Development. 4 Hours.**

Examines physiological, neurological, and psychological factors that contribute to development across the lifespan. This course will explore developmental theories and changes in development of cognition, communication, physical, social/emotional, and adaptive skills. Emphasis will be on understanding healthy growth and development and learning how to help children, adolescents, and adults manage developmental challenges. This course will emphasize the need to examine participation in meaningful activities within authentic contexts with considerations for the impact of a disability on functional performance. Prerequisite: Successful completion of the first 4 semesters of the DPT curriculum or permission of instructor. LEC.

**PTRS 852. Neurologic Physical Therapy and Rehabilitation I. 6 Hours.**

This course will introduce the principles of neuroscience and describe their application as relevant to physical therapists. The course will introduce the terminology of the nervous system and cover the major functions of the nervous systems. This course will also integrate neurophysiology and neuroanatomy into the clinical presentation of adults with neurologic pathology. The etiology, epidemiology signs, and symptoms of selected neurological conditions will be presented. The medical management of patients with nervous system disorders will be presented in relationship to the practice of physical therapy. The course will introduce examination of impairments for persons with neuromuscular pathologies. Students will be presented with simple case studies and progress to more complex patient problems. Learning opportunities include lecture and laboratory. Prerequisite: Successful completion of the first 4 semesters of the DPT curriculum or permission of instructor. LEC.

**PTRS 853. Neurologic Physical Therapy and Rehabilitation II. 6 Hours.**

This course will focus on rehabilitation approaches for people with neurologic pathology. Students will examine factors that contribute to
Students will be exposed to business development and entrepreneurial skills needed to expand or start up a physical therapy practice. Prerequisite: Successful completion of the first 6 semesters of the DPT curriculum or permission of instructor. LEC.

**PTRS 880. Differential Diagnosis of General Medical Conditions. 3 Hours.**
Designed to provide students with the knowledge and clinical tools to medically screen patients for the presence of symptoms and signs that require the expertise of other health care professionals. It will focus on diagnoses that are not covered by common PT practice including diseases of the endocrine system, the immune system, GI system, and neoplasias. Prerequisite: Admission into the post-professional DPT program, or consent of instructor. LEC.

**PTRS 882. Pathophysiology and Physical Therapist Screens. 6 Hours.**
Review of integrative human pathophysiology with an emphasis upon homeostatic mechanisms and etiologies of disease. The interrelationships of function and dysfunction at the molecular, cellular and tissue level (pathology), organ and systemic level (impairment) and to the total human body (functional limitations) will be applied in each of the body systems. Discussions and applied materials will be tailored to the physical therapist with an emphasis on clinical tools to medically screen patients for the presence of symptoms and signs. Prerequisite: Successful completion of semester 1 of the DPT curriculum or permission of instructor. LEC.

**PTRS 920. Clinical Internship I. 6-8 Hours.**
Nine to twelve weeks of clinical internship. During the clinical internship, the student will have the opportunity to develop the patient care skills needed for successful practice as a physical therapist. The student will work under the supervision of an experienced physical therapist in clinical settings affiliated with the program. Prerequisite: Successful completion of the first 7 semesters of the DPT curriculum or permission of instructor. CLN.

**PTRS 921. Clinical Internship II. 6-8 Hours.**
Nine to twelve weeks of clinical internship. During the clinical internship, the student will have the opportunity to develop the patient care skills needed for successful practice as a physical therapist. The student will work under the supervision of an experienced physical therapist in clinical settings affiliated with the program. Prerequisite: Successful completion of the first 7 semesters of the DPT curriculum or permission of instructor. CLN.

**PTRS 922. Clinical Internship III. 6-8 Hours.**
Nine to twelve weeks of clinical internship. During the clinical internship, the student will have the opportunity to develop the patient care skills needed for successful practice as a physical therapist. The student will work under the supervision of an experienced physical therapist in clinical settings.
settings affiliated with the program. Prerequisite: Successful completion of the first 7 semesters of the DPT curriculum or permission of instructor. CLN.

PTRS 923. Clinical Internship IV. 2-6 Hours.
Three to nine weeks of clinical internship. During the clinical internship the student will have the opportunity to develop the patient care skills needed for successful practice as a physical therapist. The student will work under the supervision of an experienced physical therapist in clinical settings affiliated with the program. Prerequisite: Successful completion of the first 7 semesters of the DPT curriculum or permission of instructor. CLN.

PTRS 924. Specialized Internship. 2-6 Hours.
Three to nine weeks of clinical internship. During the clinical internship the student will have the opportunity to have exposure to a different health care system such as an international clinical experience, or a specialized area of physical therapy practice. The student will be under the supervision of an experienced physical therapist in clinical settings affiliated with the program. Prerequisite: Successful completion of the first 7 semesters of the DPT curriculum or permission of instructor. CLN.

REHS 760. Introduction to Matlab Programming. 1 Hour.
Introduction: matlab windows, input-output, file types, general commands; interactive computation; matrices and vectors, matrix and array operations, scripts and functions applications, graphics. Prerequisite: None LEC.

REHS 805. Seminar in Rehabilitation Research. 0.5-3 Hours.
Students will be instructed in the planning and presentation of a 45 minute scientific seminar on topics outside their thesis area and on their thesis work. Students will learn how to design and produce effective poster presentations. Prerequisite: Entry in the PhD program in Rehabilitation Science or consent of instructor. SEM.

REHS 850. Neuroscience. 4 Hours.
This course will introduce the principles of neuroscience and describe their application as relevant to rehabilitation scientists. The course will begin with the terminology of the nervous system, then cover the major functions of the peripheral, autonomic and central nervous systems. The manner in which these systems interact to produce appropriate responses to external demands will be discussed. The behavioral consequences of damage to each systems will be integrated throughout. Particular emphasis will be placed on the sensorimotor role in perception and the control of movement. Lecture and Lab. Prerequisite: Entry in the PhD in Rehabilitation Science Program. LEC.

REHS 856. Research Design and Methods I. 2 Hours.
An introduction to research design and methods including library and multimedia resources; research process; measurement theory (reliability and validity); experimental design principles; single subject design and other non-experimental design; critical thinking skill and procedure; critical review and analysis of a research article; basic scientific writing skills; and skills in writing a research report/manuscript. Prerequisite: Entry into the PhD in Rehabilitation Science program or permission of instructor. LEC.

REHS 857. Research Design and Methods II. 2 Hours.
An introduction to research design and method including critically appraising the state of art on a research topic; conducting a systematic review of literature; basic concept of statistical analysis, performing and interpreting data analysis using parametric, non-parametric, or correlational analyses; preparation of a research proposal focusing on study rational, novelty, and research questions and hypotheses; ethical issues related to research; basic knowledge of bioinformatics; meta-analysis; and writing of a research proposal. Prerequisite: Entry into the PhD in Rehabilitation Science program or permission of instructor. LEC.

REHS 862. Cellular and Molecular Basis of Rehabilitation. 2 Hours.
A study of the biology, at the cellular and molecular levels, of pathological processes that impair human function will highlight the mechanisms by which cells/tissues repair and/or adapt following disease/injury or aging. Emphasis will be placed on the body’s edogenous ability for rehabilitation or adaptation to disease/injury. Prerequisite: Entry into the PhD in Rehabilitation Science program or permission of instructor. LEC.

REHS 863. Pathobiology of Human Function II. 4 Hours.
A study of biology and pathological processes that impair human function with emphasis on neuromuscular diseases, injury and diseases of the central and peripheral nervous systems, and neurological disorders associated with development and aging. Prerequisite: Entry into the PhD in Rehabilitation Science program, or consent of instructor. LEC.

REHS 865. Independent Study. 1-3 Hours.
Individually negotiated learning experiences appropriate to the interests and background of the student. Prerequisite: Entry in the PhD in Rehabilitation Science program, or permission of instructor. IND IND.

REHS 870. Teaching Practicum. 1-3 Hours.
Directed experiences in a planned instructional activity. Student will write course objectives, plan and deliver lectures, produce practical and written exams and assign grades. Prerequisite: Entry in the PhD in Rehabilitation Science program or consent of instructor. LEC.

REHS 873. Research Practicum. 1-3 Hours.
Specialized clinical training in a highly specific area of specialization. The primary purpose of this course is for the student to develop advanced clinical skills in his/her area of specialization. Prerequisite: Admission to the PhD in Rehabilitation Science program, and permission of instructor. CLN.

REHS 862. Advanced Studies in Rehabilitation Science. 3 Hours.
This course will explore the state of art of clinical and basic scientific research in rehabilitation. Students will learn how to critically analyze the research literature in the neuromotor, musculoskeletal, cardiopulmonary, and other rehabilitation fields. The course will cover the topics including but not limited to rehabilitation to improve balance and gait, rehabilitation in stroke survivors and patients with neurodegenerative diseases, rehabilitation in patients with injury/pathological conditions to ligament, tendon, and bone/cartilage, rehabilitation in patients with cardiopulmonary disease, rehabilitation in cancer patients/survivors, etc. Current literature in each topic area will be investigated to determine the features of the pathological condition and targeted subjects, factors that contribute to the outcomes of the rehabilitation, research tools and measurements, potential optimal rehabilitation techniques, and directions of future research. Prerequisite: Entry into the PhD in Rehabilitation Science program or permission of instructor. Basic knowledge in pathobiology and neuroscience in required. LEC.

REHS 970. Instrumented Analysis of Human Biomechanical Function. 3 Hours.
An in-depth study that provides critical analysis of equipment and other resources used in analyzing human motion, balance, strength, electrophysiological responses, and cardiorespiratory function. Students will be required to conduct a preliminary study, including design, methodology and data collection using one or more of these instruments. Prerequisite: Entry in the PhD in Rehabilitation Science program, or consent of instructor. LEC.
RESP 303. Introduction to Respiratory Care Procedures. 5 Hours.  
An introductory course designed to acquaint the student with the fundamental theory, procedures, and equipment used in respiratory therapy. Emphasis is placed on understanding application of equipment and procedures to the patient, and the respiratory therapy treatment of patients requiring non-continuous ventilatory assistance. This course introduces such topics as cardiopulmonary resuscitation, bronchopulmonary hygiene, airway care, oxygen therapy, and cleaning and sterilization of equipment. Prerequisite: Concurrent enrollment in RESP 318 and RESP 325. LEC.

RESP 310. Clinical Pharmacology I. 1 Hour.  
The student will learn about adrenergic and parasympatholytic bronchodilators, corticosteroids, mucus-controlling drugs, surfactant agents, anti-infectives, and the anti-infective drugs used for the treatment of respiratory disorder. LEC.

RESP 311. Clinical Pharmacology II. 1 Hour.  
Content of this course includes neuromuscular blocking agents, cardiac agents, diuretics, anti-hypertensives, and central nervous system drugs. LEC.

RESP 318. Pulmonary Pathology. 3 Hours.  
A course consisting of lecture and group discussion designed to introduce the student to pulmonary pathology. Special emphasis is placed on the etiology, pathophysiology, and treatment of pulmonary diseases. This course includes such topics as signs and symptoms of lung disease, chronic obstructive pulmonary diseases, pleural and mycotic diseases. Prerequisite: Corequisite: RESP 303, RESP 325, RESP 330, or permission of instructor. LEC.

RESP 325. Clinical Process. 2 Hours.  
This course serves to introduce the beginning respiratory therapy student to the clinical environment. The student spends sixteen hours per week participating in either a clinically-oriented workshop or performing the fundamentals of respiratory therapy in the clinical setting. Typically meets Monday-Wednesday/Friday. FLD.

RESP 330. Cardiopulmonary Physiology. 4 Hours.  
Designed to introduce the student to the basics of physiology of the cardiovascular and pulmonary systems. This course contains such topics as regulation of respiration and pH homeostasis, ventilation and perfusion relationships, and hemodynamics of the cardiovascular system. LEC.

RESP 340. Mechanical Ventilators. 5 Hours.  
This course contains such topics as arterial puncture, classification of mechanical ventilators and adjunct devices, and their application to the patient. Four hours of lecture/discussion and a 3 hour weekly laboratory acquainting the student with the rationale for continuous mechanical ventilation and the basic operation of adult, pediatric and neonatal mechanical ventilators. Emphasis is placed on the selection of appropriate equipment and assessment of its effect on the patient. Prerequisite: RESP 303, RESP 318, RESP 325 and RESP 330. LEC.

RESP 345. Adult Critical Care. 3 Hours.  
This course introduces the student to the different types of traumatic injuries in the critically ill adult patient. Topics such as the shock syndrome, multi-organ traumas including chest, head, spinal cord and thermal injuries will be discussed. Discussion of cardiac life support, fluid resuscitation, monitoring and ventilatory management are integrated into each topic. Prerequisite: Completion of RESP 303, RESP 310, RESP 318 and RESP 330 or their equivalent. LEC.

RESP 350. Clinical Application I. 1 Hour.  
This course provides the intermediate respiratory therapy student with opportunities to practice basic respiratory therapy procedures. Emphasis placed on performance of respiratory therapy procedures and application of equipment. This course emphasizes such topics as oxygen therapy, aerosol therapy, incentive spirometry, patient assessment, and IPPB therapy. The student will assume limited patient care responsibilities. Prerequisite: RESP 303, RESP 310, RESP 318, RESP 325, and RESP 330 or their equivalent. FLD.

RESP 355. Clinical Application II. 1 Hour.  
This course provides the respiratory therapy student with an introduction to the critical care setting. The student will begin to apply the procedures and equipment most often utilized in the intensive care areas. Emphasis is placed on continuous mechanical ventilation, artificial airways, airway care, and bedside pulmonary function testing. The student will assume limited patient care responsibility in the critical care areas. Prerequisite: RESP 303, RESP 310, RESP 318, RESP 325 and RESP 330 or their equivalent. FLD.

RESP 375. Clinical Application III. 2 Hours.  
This course provides the advanced respiratory therapy student with opportunities to refine procedural and evaluative skills in the critical care areas. The student will spend a minimum of twenty-four hours per week in the clinical setting. Emphasis is placed upon the students' ability to evaluate the patients' clinical situation and recommend appropriate therapy modalities to the clinical supervisor. During this course the student will assume wider-ranging patient care responsibilities. Prerequisite: RESP 340, RESP 345, RESP 350, RESP 355, RESP 395 or their equivalent. FLD.

RESP 390. Pulmonary Function. 2 Hours.  
Lecture and laboratory introducing the student to basic pulmonary function procedures. This course allows the student to practice pulmonary function tests and interpret the results. Lecture and laboratory topics include such topics as the measurement of lung volumes and capacities, body plethysmography, blood gas analysis, and flow volume loops. Prerequisite: RESP 318, RESP 325, and RESP 330. LEC.

RESP 395. Pediatric Critical Care. 1 Hour.  
Study of common neonatal and pediatric disorders/diseases for the beginning respiratory care student. Lectures on basic fetal lung development, assessment of both the pediatric and neonatal patient and disorders/diseases such as respiratory distress syndrome, bronchopulmonary dysplasia, bronchiolitis, epiglottis and croup, and other commonly seen problems. Prerequisite: RESP 303, RESP 310, RESP 318 and RESP 330 or their equivalent. LEC.

RESP 399. Generalist Practice. 3 Hours.  
This course is designed to allow students the opportunity to improve and perfect skills acquired in the junior year clinical courses. Emphasis will be given to refining the students' abilities to assess patient status and administer appropriate therapy modalities. This course may also be used to assess respiratory therapy knowledge and skills of students transferring from other programs. Prerequisite: Permission of instructor. FLD.
RESP 400. Advanced Critical Care. 4 Hours.
Concepts of the diseases and disorders that effect the critically ill adult are explored. Emphasis is placed on understanding common illnesses such as cardiac dysrhythmias, acute coronary syndrome, trauma of the chest and head, organ failure and toxin exposure as well as the other medical challenges of the critically ill patient. LEC.

RESP 401. Neonatal Respiratory Care. 4 Hours.
This course is designed to provide the student with an introductory knowledge of fetal and newborn cardiorespiratory anatomy, physiology, development, pathophysiology, and care. Prerequisite: Senior year standing or permission of instructor. LEC.

RESP 402. Chronic Respiratory Disease Management: The Evolving Role of the Respiratory Therapist. 3 Hours.
This course is an introduction to the evolving role of respiratory therapists in health care, especially in the area of chronic disease management. The students will explore various trends that are contributing to the role respiratory therapy may play in patient care. Topics covered in this course include COPD and asthma management, pulmonary rehabilitation, cardiopulmonary exercise testing, home care, elderly care, nutritional care of the pulmonary patient, and communication skills necessary for patient education. Students in this course will gain an understanding of how they can contribute to an inter-professional team in order to provide safe and effective patient care. Presentation of topics in this course may include lecture, group work/discussion, audiovisual, computer and other multimedia aids. LEC.

RESP 403. Physical Science for Health Professions. 3 Hours.
This course is an introduction to the fundamental concepts and principles of physics, chemistry, and the earth sciences. Topics include forces, energy, electricity, magnetism, modern physics, and chemical bonding. This course will provide respiratory therapists and students an applicable level of knowledge that aids in their understanding of therapies and equipment used in every day clinical practice. The course includes presentation of material using audiovisual, computer and other multimedia aids. LEC.

RESP 405. Health Care Management, Ethics and Law. 3 Hours.
This course provides an overview of fundamental concepts in healthcare management, law, and ethics. Students will learn the skills and knowledge necessary to be successful in management leadership, management design, and managing diversity. Ethical concerns relevant to the healthcare manager will be addressed. Current and historical controversies in healthcare will be discussed. Upon completion of this course, students will have the knowledge to understand laws, ethics, and management principles of the complex healthcare landscape. LEC.

RESP 425. Advanced Critical Care Procedures. 2 Hours.
This course is the capstone of the critical care experience and concentrates on advanced practice and assessment skills in the critical care setting. Emphasis is placed on quantitative assessment and monitoring procedures, advanced ventilator management and interpretation of data. This course requires access to the medical information of an intensive care patient. Prerequisite: RESP 375 or equivalent. LEC.

RESP 490. Special Studies or Projects. 1-9 Hours.
This course involves individual study, research or projects in the field of respiratory care under instructor guidance. Written reports and periodic conferences are required. Content and unit credit will be determined by student-instructor conferences and/or departmental conferences. This course may be repeated for a maximum of nine credits. Prerequisite: Admission to the respiratory care program and consent of instructor. LEC.

RESP 491. Clinical Specialty Practicum. 10 Hours.
This course involves individual study, research or projects in the field of respiratory care under instructor guidance. Written reports and periodic conferences are required. Content and unit credit will be determined by student-instructor conferences and/or departmental conferences. This course may be repeated for a maximum of nine credits. Prerequisite: Admission to the respiratory care program and consent of instructor. LEC.

RESP 492. Registry Review. 2 Hours.
This course involves individual study under instructor guidance. The course includes registry exam and clinical simulation exam. Prerequisite: Admission to the respiratory care program and consent of instructor. LEC.

RESP 493. Research in Health Care. 3 Hours.
Provides the student with a capstone experience in the activities and responsibilities related to clinical processes in one of the specific advanced practice specialties: critical care, neonatal, pediatrics, pulmonary rehabilitation, pulmonary function, sleep, hyperbaric oxygen, management or education. Prerequisite: Permission of the instructor. FLD.

RESP 661. Management Principles in Health Care. 3 Hours.
An introduction to basic principles of management and their application in the current health care environment. Course content includes management theory, scope of management, quality issues, budgeting, personnel issues, evaluation and application of management concepts. Cross listed with HEIM 661 and CLS 661. Prerequisite: Senior year standing or permission of the instructor. LEC.

RESP 662. Education Principles in Health Care. 2 Hours.
An introduction to basic principles of education and their application in the current health care environment. Information on course content includes: Course design, inservice education and patient education. The focus is on educational needs, instructional media and course quality improvement. LEC.

RESP 663. Scientific Investigation Part I. 1 Hour.
This course is designed to provide the participant with an introduction to research skills culminating in a group Proposal of a bench study or chart review. The Proposal will consist of three sections: Introduction, Review of the Literature and Methods. The three sections will be developed through a series of progress reports with the aid of a faculty advisor. Students will work in groups to develop a research question about their daily practice that can only be answered by conducting research. This course will include discussions of the types of research data and the structure of a research manuscript. Students will have opportunities to read, interpret and analyze research reports and practice in writing critical evaluations of the literature as it applies to their research question. Prerequisite: Statistics LEC.

RESP 664. Scientific Investigation Part II. 1 Hour.
This course is designed to teach the student how to read, interpret and analyze research reports. Prerequisite: Senior year standing and a course in statistics. LEC.

RESP 665. Scientific Investigation Part III. 1 Hour.
Each study group will write the Discussion and Conclusion sections of their paper and share their findings in a poster presentation. The final version of each group's study manuscript must be submitted to course instructor prior to graduation. The quality of the manuscript will be appropriate for submission to the journal of Respiratory Care. Prerequisite: RESP 663, 664. LEC.

RESP 666. Research in Health Care. 3 Hours.
Provides the student with a capstone experience in the activities and responsibilities related to clinical processes in one of the specific advanced practice specialties: critical care, neonatal, pediatrics, pulmonary rehabilitation, pulmonary function, sleep, hyperbaric oxygen, management or education. Prerequisite: Permission of the instructor. FLD.

RESP 667. Registry Review. 2 Hours.
This course involves individual study under instructor guidance. A series of practice exams are taken and discussed including a secured practice registry exam and clinical simulation exam. Prerequisite: Admission to the respiratory care program and consent of instructor. LEC.
RESP 671. Clinical Specialty Projects I. 6 Hours.
Designed to give the student the opportunity to develop clinically-related projects in the areas of quality improvement, health care organizational structures and current processes in patient management. Prerequisite: Permission of the instructor. FLD.

RESP 672. Clinical Specialty Projects II. 6 Hours.
Designed to have the student demonstrate competency related to clinical processes in one of the specific advanced practice specialties: critical care, neonatal, pediatrics, pulmonary rehabilitation, pulmonary function, sleep, hyperbaric oxygen, management or education. Prerequisite: Permission of the instructor. FLD.

Therapeutic Science Courses

TS 800. Research Proseminar. 1 Hour.
A proseminar conducted by the core graduate faculty in Occupational Therapy and Therapeutic Science. Twice-monthly meetings will involve student and faculty presentations of their current research, as well as provide more opportunities to obtain feedback on research proposals. May be taken more than once for a total of four credits. (Same as OTMS 800.) LEC.

TS 805. Multidisciplinary Theoretical Perspectives. 3 Hours.
Students will identify and explore key theories in behavioral and social science with an emphasis on those currently influencing clinical reasoning. Students will demonstrate an understanding of contemporary theories and be able to compare and contrast key theories, while also developing knowledge about theory guided research and interventions. LEC.

TS 850. From Beliefs to Evidence. 1 Hour.
Analysis of the role of beliefs about practice in professional culture and how beliefs are affected by the accumulation of research evidence. Topics include the nature of science and beliefs, the nature of evidence, and the debate over evidence-based practice. Students will use topics from their own professional interests for class presentations and written assignments. May be taken more than once for a total of two credits. LEC.

TS 880. Special Projects. 1-6 Hours.
An elective course to allow student investigation of special issues or problems relevant to applied research and/or practice, under the direction of a faculty member chosen by the student. Systematic coverage of current issues may include a research investigation or study related to pertinent sociocultural trends, practice factors, or emerging issues in service provision. Students will complete special projects such as oral presentations, written papers, or case analysis as negotiate with the faculty member. May be repeated for credit. Prerequisite: Permission of instructor. IND.

TS 900. Evolving Interdisciplinary Views of Disablement. 1 Hour.
Assessment of how our social and cultural context defines notions of disability and disablement in our society. Topics include historical constructs of disability, public policy related to disability, and social paradigms of disability. Students will evaluate views of disablement from the perspective of their own discipline. May be taken more than once for a total of two credits. LEC.

TS 950. Designing Effective Knowledge Transfer. 1 Hour.
Examination of the principles of knowledge transfer and diffusion of innovation as they relate to practices in therapeutic professions. Topics include the diffusion process, change agents, innovation adoption, and current diffusion methods. Students will evaluate diffusion processes that have occurred within their own professions. May be taken more than once for a total of two credits. LEC.

TS 980. Advanced Study in Therapeutic Science. 1-6 Hours.
Students engage in advanced study of a topic of their interest, guided by an appropriate mentor. Methods include directed readings, interpretation of evidence, discussions, and written syntheses of existing literature. Course culminates in a written proposal for original research and an oral defense of that proposal. Credit is given only after the dissertation proposal is accepted by the student's advisory committee. Prerequisite: Permission of instructor. SEM.

Research experience leading to dissertation for doctoral students in Therapeutic Science. THE.