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See pages 12-13 for admission procedures.  
One of the first methods of teaching deaf children to speak was developed at KU.  
For help finding course descriptions, see the Directory of Courses, pages 7-8.
Academic programs at the University of Kansas Medical Center are offered through the Schools of Allied Health, Medicine, and Nursing. The Office of the Dean of Graduate Studies at KUMC handles matters related to graduate programs in Allied Health, Medicine, and Nursing.

Graduate programs in dietetics and nutrition, hearing and speech, molecular biotechnology, nurse anesthesia, occupational therapy, physical therapy, rehabilitation science, and therapeutic science are offered in Kansas City. Graduate programs in hearing and speech are offered cooperatively with the Lawrence campus.

Basic admission requirements are listed in the General Information chapter of this catalog. Individual graduate programs have specific requirements including prerequisite undergraduate courses. These are listed or referenced in program descriptions.

The School of Allied Health offers a Dietetic Internship graduate certificate and the following graduate degrees, in cooperation with other academic units:

- Master of Arts
- Master of Occupational Therapy
- Master of Science
- Doctor of Audiology
- Doctor of Occupational Therapy
- Doctor of Physical Therapy
- Doctor of Philosophy

For online information about graduate programs, see www.alliedhealth.kumc.edu.

**Graduate Studies**

KUMC Graduate Studies sponsors a number of interdisciplinary courses as well as courses in English as a second language. See the Graduate Studies chapter of this catalog.

**Clinical Laboratory Sciences**

Chair: Venus Ward
KU Medical Center, G014 Eaton, Mail Stop 4048
3901 Rainbow Blvd., Kansas City, KS 66160
www.biotech.kumc.edu, (913) 588-5220
Graduate Director: Eric Elsinghorst, elsinghorst@kumc.edu, G002 Eaton, (913) 588-1089

**Master of Science in Molecular Biotechnology**

The Master of Science in molecular biotechnology is a two-year nonthesis program that provides broad-based knowledge and skills to prepare students for advanced careers in molecular biotechnology-oriented clinical, industrial, and research laboratories. Students receive training in the use and application of advanced methodologies and instrumentation as well as critical thinking, troubleshooting, and communication skills. The application of these skills to research and development is emphasized. The curriculum provides broad-based training and experience through course work and practica in biotechnology settings. The core curriculum includes biochemistry, cell and developmental biology, molecular biology, molecular techniques, research ethics, biotechnology issues, and radiation safety.

Practical skills are built through lecture and laboratory course work in the theory and application of molecular biotechnologies. Students perform three practica in biotechnology research and development settings.

**Admission.** Applications are considered in accordance with KU admission requirements. Applicants must have earned a baccalaureate degree in a life science (e.g., biochemistry, biology, cell biology, clinical laboratory sciences, microbiology, molecular biosciences) or chemistry before enrolling in the program. An applicant with a degree in another area can be considered if all prerequisite course work is completed before enrolling in the program. Applicants should have minimum grade-point averages of 3.0 on a 4.0 scale. Applicants with lower averages may be considered for probationary or provisional admission. Applicants must fill out a KUMC Graduate Studies application. Additional application materials include official college transcripts; Graduate Record Examination scores for the verbal, quantitative, and analytical tests (taken within two years of the initial semester); three letters of recommendation from faculty members and employers; a one-page personal statement describing the applicant’s educational and career goals; and a history of the applicant’s research and work experience or a résumé. International students should have an official copy of Test of English as a Foreign Language scores (taken within the last two years) sent to the CLS graduate director. Before enrolling, the following courses or their equivalents must be completed: general chemistry (two semesters), organic chemistry lecture and laboratory (at least one semester), biochemistry (one semester), genetics (one semester), cell biology (one semester), calculus (one semester), physics (one semester). Students start the program in the fall semester only. The application deadline is February 1.

**Degree Requirements.** The M.S. in molecular biotechnology is a minimum 40-credit-hour program designed to be completed in two years if pursued full time. The core curriculum is completed in the first year. Students enroll in three semester-long practica in the summer, spring, and fall terms of the second year. Each practicum is performed at a different site to provide a different molecular biotechnology emphasis. Practicum sites emphasize bioscience research, biotechnology industrial applications, or molecular diagnostics. The practica provide extensive hands-on experience with molecular technologies as well as experience in bioscience. Students work with investigators, laboratory staff, and others in the activities of the practicum site. While students are enrolled in a practicum, their primary academic obligation is at that site; students engage full time in practicum activities. This dedicated effort allows students to understand in depth the theory and application of advanced molecular techniques and technologies. Studying at a single practicum site for a full semester allows students to gain an...
appreciation of the day-to-day opportunities, obligations, and realities of professionals in molecular biotechnology. Students also complete Journal Club and Scientific Writing courses during the second year of the program. During the second spring semester, a final general examination is required. This consists of a written and an oral examination. Successful completion of the written component is required before taking the comprehensive oral examination over general knowledge of molecular biotechnology concepts and applications.

This program is not well suited to part-time study, particularly the practicum component. However, it is possible to extend the course of study over more than two years by delaying the recommended schedule of courses.

**Recommended Course Sequence**

### Fall Semester 1 (10 credit hours)
- GSMC 850 Proteins and Metabolism ................................................................. 2
- GSMC 851 Molecular Genetics ....................................................................... 2
- GSMC 852 Introduction to Biomedical Research I ....................................... 2
- CLS 710 Molecular Techniques I .................................................................. 2
- CLS 711 Molecular Techniques Laboratory I ................................................ 2

### Spring Semester 1 (12 credit hours)
- GSMC 853 Cellular Structure ...................................................................... 2
- GSMC 854 Cell Communication .................................................................... 2
- GSMC 855 Introduction to Biomedical Research II .................................... 2
- GSMC 856 Introduction to Research Ethics .................................................. 1
- CLS 720 Molecular Techniques II .................................................................. 2
- CLS 721 Molecular Techniques Laboratory II ............................................... 2
- CLS 730 Current Issues in Biotechnology ...................................................... 1

### Summer Session 1 (6 credit hours)
- BIOL 702 Laboratory Practicum: Radiation Safety Procedures ....................... 0.75
- BIOL 703 Radiosotopes and Radiation Safety in Research ............................ 1.25
- CLS 750 Practicum I ....................................................................................... 4

### Fall Semester 2 (6 credit hours)
- CLS 751 Practicum II ...................................................................................... 5
- CLS 740 Journal Club ....................................................................................... 1

### Spring Semester 2 (6 credit hours)
- CLS 752 Practicum III ..................................................................................... 5
- CLS 742 Scientific Writing ............................................................................... 1

### Clinical Laboratory Sciences Courses

- CLS 520 Phlebotomy (1).
- CLS 523 Fundamental Analytical Techniques Laboratory (2).
- CLS 530 Clinical Chemistry I (3).
- CLS 531 Clinical Chemistry I Laboratory (1).
- CLS 532 Clinical Microbiology I (3).
- CLS 533 Clinical Microbiology I Laboratory (3).
- CLS 536 Hematology I (3).
- CLS 537 Hematology I Laboratory (2).
- CLS 540 Clinical Chemistry II (2).
- CLS 541 Senior Seminar in CLS (2).
- CLS 542 Clinical Microbiology II (2).
- CLS 543 Clinical Microbiology II Laboratory (2).
- CLS 544 Immunohematology I (3).
- CLS 545 Immunohematology I Laboratory (2).
- CLS 546 Hematology II (3).
- CLS 547 Hematology II Laboratory (2).
- CLS 549 Clinical Immunology I Laboratory (2).
- CLS 605 Introduction to Molecular Biotechnology I (1).
- CLS 610 Advanced Biotechniques Lecture (3).
- CLS 611 Advanced Biotechniques Laboratory (2).
- CLS 615 Journal Club (1).
- CLS 620 Radiation Safety (1).
- CLS 621 Biotechnology Methodologies Practicum (4).
- CLS 622 Problems in Molecular Genetics, Molecular Diagnostics, Proteomics, and Molecular Immunology (4).
- CLS 623 Molecular Genetics Practicum (4).
- CLS 625 Cytogenetics Practicum (4).
- CLS 627 Protein Structure/Function Practicum (4).
- CLS 629 Cytokine/Chemokine Practicum (4).
- CLS 631 Molecular Immunology Practicum (4).
- CLS 633 Special Topics Practicum (4).
- CLS 640 Clinical Chemistry III (2).
- CLS 641 Clinical Chemistry Practicum (3).
- CLS 642 Clinical Microbiology III (2).

- CLS 643 Clinical Microbiology Practicum (3).
- CLS 644 Immunohematology II (1).
- CLS 645 Immunohematology Practicum (1).
- CLS 646 Hematology III (1).
- CLS 647 Hematology Practicum (3).
- CLS 648 Clinical Immunology II (1).
- CLS 649 Clinical Immunology Practicum (1).
- CLS 650 Clinical Laboratory Science Review (1).
- CLS 655 Molecular Biotechnology Review Course (1).
- CLS 661 Management Principles in Health Care (3).
- CLS 670 Principles of Education in Clinical Laboratory Science (1).
- CLS 690 Special Topics (1-5).
- CLS 705 Fundamentals of Pathophysiology (3). Review of integrative human physiology 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 systematic 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 professional student population. Prerequisite: Admission to the Dietetics and Nutrition program or permission of the instructor(s), LEC.

- CLS 710 Molecular Techniques II (2). A lecture course covering the theory underlying molecular techniques involving nucleic acids. 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 amplification, hybridization, and nucleic acid databases and their analysis. This course is meant for graduate students in the Molecular Biotechnology program. Prerequisite: Consent of instructor. LEC.

- CLS 711 Molecular Techniques Laboratory I (2). A laboratory course that introduces students to the application and practice of molecular techniques involving nucleic acids. Topics include purification and analysis of nucleic acids, recombinant DNA, genetic engineering, control of gene expression, construction of gene fusions, amplification, and hybridization. Topics are covered through a project-based approach. This course is meant for graduate students in the Molecular Biotechnology program. Prerequisite: Consent of instructor. LAB.

- CLS 720 Molecular Techniques II (2). A lecture course covering the theory underlying molecular techniques involving proteins. Topics include fractionation of prokaryotic and eukaryotic cells, protein extraction and quantification, native and denaturing electrophoresis, protein purification and solubilization, analysis of protein-protein interactions, construction of fusions, site directed mutagenesis, control of protein expression, and proteomics. This course is meant for graduate students in the Molecular Biotechnology program. Prerequisite: Consent of instructor. LAB.

- CLS 721 Molecular Techniques Laboratory II (2). A laboratory course that introduces students to the application and practice of molecular techniques involving proteins. Topics include fractionation of prokaryotic and eukaryotic cells, protein extraction and quantification, native and denaturing electrophoresis, protein purification and solubilization, analysis of protein-protein interactions, construction of fusions, site directed mutagenesis, control of protein expression, and proteomics. This course is meant for graduate students in the Molecular Biotechnology program. Prerequisite: Consent of instructor. LAB.

- CLS 730 Current Issues in Biotechnology (1). A seminar course that address 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). 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, an 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). 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 meant 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). 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). Advanced practical experience in a selected laboratory focused on nucleic acid-based diagnostic methodologies and technologies. 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...
Communicative Disorders: Intercampus Program

The Intercampus Program in Communicative Disorders comprises the Department of Speech-Language-Hearing: Sciences and Disorders on the Lawrence campus and the Department of Hearing and Speech on the KU Medical Center campus. Speech-Language Pathology courses are listed under Communicative Disorders: Intercampus Program in the College of Liberal Arts and Sciences chapter of this catalog. Audiology courses are listed in this chapter.

The intercampus program offers Master of Arts and Doctor of Philosophy degrees in speech-language pathology and audiology, as well as the Doctor of Audiology. The M.A. program in speech-language pathology and the Au.D. program in audiology are fully accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association. The audiology program also offers a combined Au.D./Ph.D. track to facilitate the completion of both degrees within a six-year period.

Hearing and Speech, KU Medical Center:
Chair: John Ferraro, jferraro@kumc.edu
KU Medical Center, 3031 H.C. Miller Building, Mail Stop 3039
3901 Rainbow Blvd., Kansas City, KS 66160
www.hearing.kumc.edu, (913) 588-5937

Speech-Language-Hearing: Sciences and Disorders, Lawrence:
Chair: Hugh Catts, catts@ku.edu
Dole Human Development Center, 1000 Sunnyside Ave., Room 3001
Lawrence, KS 66045-7561, www2.ku.edu/~splh, (785) 864-0630
Professors: Barlow, Catts, Ferraro, Fey, Rice
Associate Professors: Chertoff, Jackson, Loeb, Searl, Storkel, Widen
Clinical Associate Professor: Wegner
Assistant Professors: Auer, Brady, Ferguson, Johnson
Clinical Assistant Professors: Bunce, Daniels, Keener, Kennalley
Clinical Instructors: Banks, Gatts, Gillispie, Grosche, Haring, Johnston, Waggoner
Adjunct Faculty: Ator, Barohn, Baumgartner, Burns, Durham, McCall, Steele, Storms, Staecker

AUDiology Courses

For Speech-Language Pathology courses, see Communicative Disorders: Intercampus Program in the College of Liberal Arts and Sciences chapter of this catalog.

AUD 550 Beginning Clinical Practice in Audiology (1-3).
AUD 805 Introduction to Clinical Research (1). 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 (GCCR) and the Human Subjects Committee (FSC). 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). Audiometric calibration, pure tone and speech testing, analysis of audiograms, middle ear testing. Prerequisite: AUD 697. LAB
AUD 811 Hearing Disorders (3). 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). 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. LAB
AUD 814 Hearing Conservation (3). 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 767 and AUD 829. LAB
AUD 815 Counseling for Audiology (2). Presentation/Discussion of psychological/counseling theories and techniques and how they relate to the profession of audiology. LEC
AUD 816 Speech Perception (2). 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). 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). 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). An introduction to hearing aids: hearing aid 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 (3). Principles and methods of auditory, communicative, 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). 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). 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). 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. Prerequisites: AUD 819 and AUD 821 or permission of instructor. LEC
AUD 824 Central Auditory Processing (2). The study of the anatomy and physiology of the central auditory system. Analysis and review of the diagnostic procedures and the therapeutic approaches for patients. LEC
AUD 829 Anatomy and Physiology of the Hearing and Vestibular Mechanisms (3). Advanced study of the anatomical and physiological properties of the human hearing and vestibular mechanisms. LEC
AUD 843 Clinical Practice in Audiology (1-6). Supervised clinical work at the University and/or University Medical Center audiology clinics, or affiliated, off-campus practicum sites. Prerequisite: Permission of instructor. FLD
AUD 846 Independent Study in Problems in Audiology (1-10). IND
AUD 851 Auditory Evoked Potentials (5). 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 899 Thesis (1-10). THE
AUD 940 Seminar in Audiology: (1-4). Advanced study of selected topics in audiology such as (but not limited to): cochlear micromechanics and other physiologica l/cellular events; 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). Presentations/discussion of clinical case studies and professional issues in Audiology. Au. D. students and audiology faculty members who participate in Grand Rounds will sign up for courses/session. DIS
AUD 944 Clinical Rotation (5-8). Supervised clinical work at the University and/or University Medical Center Audiology Clinics, or affiliated off-campus sites. The Clinical Rotation is intended to prepare students for entry into their Clinical Externship and foster increased independence and confidence. Course objectives are defined in standards set forth by the American Speech-Language Association. FLD
AUD 945 Clinical Externship (3-9). 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 and 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). THE

THE UNIVERSITY OF KANSAS 2009-2011
Dietetics and Nutrition

Chair: Debra Sullivan  
KU Medical Center, 4019 Delp Pavilion, Mail Stop 4013  
3901 Rainbow Blvd., Kansas City, KS 66160  
www.dietetics.kumc.edu or sjones@kumc.edu, (913) 588-5355  
M.S. Program Director: Linda Griffith, lgriffith@kumc.edu,  
4096 Delp Pavilion, (913) 588-7652  
Dietetic Internship Director: Rachel Barkley, rbarkley@kumc.edu,  
4065 Delp Pavilion, (913) 588-7683  
Professor: Carlson  
Professor Emerita: Frakes  
Associate Professors: Barkley, Beyer, Hise, Sullivan  
Assistant Professors: Griffith, Leidy, Garmilla, Goetz  
Clinical Instructor: Baxter  
The department offers two programs. The Dietetic Internship Graduate Certificate Program is fully accredited and includes graduate credit that can be applied to an M.S. degree. The M.S. degree in dietetics and nutrition includes thesis and nontesis options.

Admission

In addition to KU admission requirements, the Graduate Record Examination is required for both programs. The institutional copy of the applicant’s GRE scores must be submitted to the department. It is recommended that the applicant achieve a combined score of at least 1000 for the verbal and quantitative sections of the general test and a score of 3.5 on the analytical section.

An applicant to the dietetic internship must have a bachelor’s degree and course work from a didactic program in dietetics approved by the American Dietetic Association. Applicants follow the national computer-matching procedure mandated by the American Dietetic Association for application to internships. Sixteen students are admitted annually. Successful completion of the internship allows the student to take the examination to become a Registered Dietitian. Dietetic interns earn 14 hours of graduate credit upon completion of the certificate program.

An applicant to the M.S. program must have a bachelor’s degree from a regionally accredited university or college with at least one 3-credit-hour course in biochemistry, physiology, and nutrition. The GRE is required for admission along with three letters of recommendation. International students must meet minimum English Proficiency Requirements. See www2.kumc.edu/aa/gradstudies/grad_adm.htm for information.

Degree Requirements

The M.S. degree thesis option requires 30 credit hours. The M.S. degree nontesis option requires 33 credit hours.

Required Courses ................................................................. Thesis .. Nonthesis
DN 834 Methods of Research ........................................... 3 ............... 3
Biostatistics (700-800 level) .............................................. 3 ............... 3
BCHM 702 ........................................................................ 3 ............... 3
DN 836 Biochemical, Physiological, and Genetic Aspects of Human Nutrition ........................................... 3 ............... 3
DN 617 Seminar in Dietetics and Nutrition (1 hour a semester for 3 semesters) ........................................... 3 ............... 3
Research (DN 899 Thesis or DN 854 Special Problems) .......... 3 (min.) .......... 3
Electives ........................................................................ 12 ............... 15

For M.S. students who are not former KUMC interns, up to 6 graduate credit hours of electives may be taken outside the department if the courses are relevant to the career goals of the student.

Thesis Option: DN 899. Thesis research can be done over several semesters. It involves all aspects of research including a proposal, collection and analysis of data, and a thesis. The thesis is presented in written form and orally in a 30-minute presentation to the department with 30 minutes of questions from the thesis committee. A 30-minute general oral examination is required.

Nonthesis Option: DN 854. The project is completed in one semester. It may include one or more of the following:
- Writing an intensive review of the literature on a given topic.
- Participation with a faculty member in the development of a research proposal or grant.
- Participation with a faculty member in conducting a pilot project.
- Participation with a faculty member in the design, implementation, or evaluation of a program in a specialized area of dietetics practice.
- Collection and/or analysis of data in conjunction with a faculty member engaged in research.

A one-page written proposal and write-up of the project and a 30-minute oral presentation to the department are required. A one-hour general oral examination is required.

Dietetics and Nutrition Courses

The asterisk (*) indicates courses approved for the intra-institutional online program only.

DIET 660 Management of Human Resources in Dietetics (6).
DIET 661 Management of Food Processing and Service (6).
DIET 662 Special Problems in Food Service Management (3).
DIET 670 Applied Normal Nutrition (3).
DIET 671 Nutrition in Medical Science (6).
DIET 672 Nutrition Care of Patients (6).
DIET 675 Seminar in Dietetics and Nutrition (1).
DN 796 Social and Cultural Aspects of Dietetics and Nutrition (2-4). 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). 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). 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 and Nutrition (1). 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 820 Nutrition Education Skills for School Teachers (3). 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.

KU’s audiology program ranked seventh in the nation among public universities in the 2009 edition of U.S. News & World Report’s “America’s Best Graduate Schools.”

For SPLH courses, see the College of Liberal Arts and Sciences chapter of this catalog.

The Dietetic Internship Graduate Certificate Program is fully accredited and includes graduate credit that can be applied to an M.S. degree.
biosed nutrition interventions, and measuring outcomes of nutrition interventions. Prerequisite: Student must be classroom instructor. LEC

DN 822 Nutrition Care Management (2-4). An intermediate level course in which students develop skills involving communication, education, and management related to dietetics and nutrition practice. Students may typically be enrolled in DN 827 Practicum associated with the Dietetic Internship. Consent of instructor is recommended without concurrent enrollment in DN 827. Prerequisite: Undergraduate course work in food service systems, management theory, or commensurate practical experience. Lectures, management experience simulations, student presentations, and tours of food service operations are educational methods used in this course. LEC

DN 826 Applied Clinical Nutrition (3). An intermediate level graduate course in which students learn the appropriate processes in the provision of nutrition care for patients in health care settings. Course content includes current nutrition theory and evidence-based practice in prevention and treatment of common health problems, eg. obesity, heart disease, diabetes, cancer, renal disease, gastrointestinal disease and hypertension. Elements of pathophysiology and biochemistry of the nutrition related problems are integrated into course topics. This course is designed for students enrolled in clinical nutrition component of DN 827 (applied practicum) associated with dietetic internship. Students from other departments may enroll with permission of instructor. LEC

DN 828 Clinical Education in Dietetics (1-7). Supervised practice experience for graduate level students to fulfill the requirements for the Dietetic Internship. Experiences take place in hospitals, clinics, community health 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 829 Nutrition and Aging (2). An overview of nutrition and the aging process. Physiological, biochemical, 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). 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). A study of basic research terminology and design commonly used in nutrition research. Topics include: research on animals, tissue culture and human subjects; qualitative, quantitative and outcome research; ethical issues in research; dissemination of research findings; and appropriate use of research findings. Prerequisite: Consent of instructor. LEC

DN 835 Advanced Medical Nutrition Therapy (3). 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. LEC


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

DN 841 Public Health Nutrition (1-3). Introduction to public health nutrition concerns, assessment of nutritional status of populations, nutrition education and counseling of individuals and groups, and nutrition services in the community. Discussion of the roles of dieters, nutritionists, and others in providing community nutrition services. Prerequisite: Consent of instructor. LEC

DN 854 Special Problems in Dietetics and Nutrition (1-4). 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). 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). 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

*DIET 862 Maternal and Child Nutrition (3). 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

DN 865 Nutrition in Sports and Exercise (3). 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). 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 diseases, childhood, adults, and the elderly. Effects of methods of counseling patients and promoting changes on an individual and small group basis will be presented. LEC

*DIET 875 Pediatric Clinical Nutrition (3). 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 medical conditions found in this population will be discussed including inborn errors of metabolism, food hyper- sensitivity, obesity, and diseases of the major organ systems. Cross-listed with DN 875. Prerequisite: Registered Dietitian or registry eligible dietitian. LEC

DN 875 Pediatric Clinical Nutrition (3). 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 medical 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 and Management of Obesity (3). 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. Prerequisites: Consent of instructor. LEC

DN 880 Dietary and Herbal Supplements (1-2). Designed to develop the health professional’s skills in partnering with patients to make dietary supplement decisions. Students will investigate the use of botanicals and dietary supplements in nutritional support of aging, maternal health, and wellness. Discussions on supplementation in the prevention and treatment of chronic disease will include: arthritis, cancer, cardiovascular, diabetes, digestive, liver and renal disorders, memory deficits, and ophthalmic dysfunctions. Prerequisite: Undergraduate degree. Completion of a course in human physiology is advisable. Lectures, journal readings, web enhanced course work and self study of recommended resources on dietary and herbal supplements are educational methods used in this course. To be eligible for 2 hours credit the student will also complete an investi-
Biochemistry, 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). Individual investigation of special problems in biochemistry and biophysics. Completion requires consent of advisor or advisory committee. Investigation involves original research. RSH.

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

Health Information Management

No graduate program is offered in health information management, but the following courses may be taken for graduate credit.

<table>
<thead>
<tr>
<th>Health Information Management Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEIM 510 Professional Practice Experience I (1).</td>
</tr>
<tr>
<td>HEIM 525 Database Management for EHR (3).</td>
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<tr>
<td>HEIM 540 Information System Concepts (3).</td>
</tr>
<tr>
<td>HEIM 560 Coding Systems (3).</td>
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<tr>
<td>HEIM 567 Health care Quality Controls (3).</td>
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<tr>
<td>HEIM 580 Reimbursement (3).</td>
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<tr>
<td>HEIM 590 Knowledge Management (3).</td>
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<tr>
<td>HEIM 604 Professional Practice Experience II (2).</td>
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<tr>
<td>HEIM 640 Health Information Systems (3).</td>
</tr>
<tr>
<td>HEIM 660 Outpatient Coding Systems (3).</td>
</tr>
<tr>
<td>HEIM 661 Management Principles in Health Care (3).</td>
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<tr>
<td>HEIM 665 Topics in Health Information Management (2).</td>
</tr>
<tr>
<td>HEIM 670 Independent Study in Health Information Management (1-10).</td>
</tr>
<tr>
<td>HEIM 675 Management Seminar (2).</td>
</tr>
<tr>
<td>HEIM 680 Management Internship (3).</td>
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</tbody>
</table>

Hearing and Speech

For a description of master’s and doctoral degree programs, see Communicative Disorders: Intercampus Program in the College of Liberal Arts and Sciences chapter of this catalog.

For Speech-Language Pathology courses, see Communicative Disorders: Intercampus Program in the College of Liberal Arts and Sciences chapter. For Audiology courses, see Communicative Disorders: Intercampus Program earlier in this chapter.

<table>
<thead>
<tr>
<th>Nurse Anesthesia</th>
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</thead>
<tbody>
<tr>
<td>Chair: Donna Nyght, <a href="mailto:nanstle@kumc.edu">nanstle@kumc.edu</a></td>
</tr>
<tr>
<td>KU Medical Center, 2026 Delp Building, Mail Stop 2020</td>
</tr>
<tr>
<td>3901 Rainbow Blvd., Kansas City, KS 66160</td>
</tr>
<tr>
<td><a href="http://www.na.kumc.edu">www.na.kumc.edu</a>, (913) 588-6612</td>
</tr>
<tr>
<td>Associate Professor: Goodyear-Bruch</td>
</tr>
<tr>
<td>Assistant Professors: Arndt, Barenklau, Bennett, Elliott, Hertel, Nyght, Weber</td>
</tr>
</tbody>
</table>

Program

The Master of Science in Nurse Anesthesia prepares the registered nurse to become a Certified Registered Nurse Anesthetist (CRNA). It is a comprehensive 36-month program that provides students with the up-to-date knowledge and skills required for success in nurse anesthesia practice. Graduates are able to function independently or in a group practice setting.

The program draws on the extraordinary academic and clinical resources of the KU Medical Center and outstanding clinical affiliate sites to enhance the student’s learning opportunities in all anesthesia techniques. Students have experiences in neurosurgery, orthopedics, urology, ophthalmology, burns, pediatrics, regional anesthesia, obstetrics/gynecology, cardiothoracic surgery, otolaryngology, general surgery, outpatient surgery, radiologic procedures, critical care, trauma, and emergency surgery.

The program offers the curriculum in an innovative contemporary education model. The first year consists of basic sciences and the foundations of anesthesia practice with a phased introduction to clinical practice. The second and third years provide extensive clinical practice while continuing didactic education through Web-based classes and research.

The application deadline is July 15 each year, and new students begin the program in the summer semester.

Upon graduation, students receive an M.S. degree in nurse anesthesia and are eligible for certification from the Council on Certification of Nurse Anesthetists. The program is fully accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs, the Kansas State Board of Nursing, and the North Central Accrediting Association.

Admission

Applicants must meet the admission requirements set by the American Association of Nurse Anesthetists’ Councils on Accreditation and Certification, the Department of Nurse Anesthesia Education, and KU. In full support of university policies, the nurse anesthesia program seeks a culturally diverse student body and does not discriminate against any group protected by law.

Departmental admission requirements:

1. The applicant must hold a license as a professional Registered Nurse (R.N.) in Kansas and Missouri, or be eligible for licensure in those states.

2. The applicant must hold a bachelor’s degree in an appropriate discipline.

3. The applicant must have at least two years of experience as a registered professional nurse with a minimum of one year of recent, full-time experience in intensive care.

4. The following courses or their equivalents must be eligible for transfer to KU as college/university credit. All courses required for admission must have been completed with a minimum grade of C and cannot be credit by examination. A Pass grade is not accepted unless the applicant provides written verification from the university that the Pass designation is equivalent to a grade of C or higher.

| Statistics: One course with both parametric and nonparametric content. |
| Basic Science: The following five science classes are required; an overall grade-point average of 3.0 on a 4.0 scale is required in these courses: |
| • Chemistry (two courses that covered the topics of inorganic, organic, and biochemistry) |
| • Microbiology (one course) |
| • Anatomy* (one course) |
| • Physiology* (one course completed within 10 years of program start date with a minimum grade of B) |

*In lieu of separate anatomy and physiology courses, two semesters of a combined Anatomy/Physiology course are acceptable (a minimum grade of B must be attained in both courses, and both must be taken within the last 10 years).

5. The applicant must have achieved an overall grade-point average of 3.0 on a 4.0 scale in all cumulative college work.

6. The applicant must have writing skills appropriate to graduate-level education.

7. The applicant must provide three recommendations from individuals who can accurately evaluate his or her clinical skills, experience, and ability to pursue graduate study. One reference is required from the applicant’s supervisor/nurse manager, one from an advanced practice nurse/M.D. (anesthesia provider preferred), and one from a former/current instructor or peer/co-worker.

8. The applicant must submit a one-page, typed statement outlining her or his educational and professional goals.

9. Once all application materials have been received, applicants meeting the above criteria are invited to attend a personal interview.
Nurse Anesthesia

Interview. Only applicants who attend the personal interview are considered for admission.

10. Before matriculation, all admitted students must

• Complete ACLS and PALS and keep them current throughout the pro-
  gram.
• Submit a to a background check at the student’s expense.

Critical Care Registered Nurse (CCRN) certification is strongly encouraged.

Because of the unique design and content of the curriculum, the program does not accept transfer students.

Degree Requirements

In addition to departmental requirements, the applicant must meet KU general requirements and the requirements of the Council on Accreditation of Nurse Anesthesia Educational Programs, as well as the Council on Certification of Nurse Anesthetists’ requirements for eligibility to write the certification examination. Department requirements include satisfactory completion of admission and curriculum requirements, a written comprehensive examination, a capstone project, and supervised clinical practicum.

Program curriculum requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry/Physics</td>
<td>3</td>
</tr>
<tr>
<td>Clinical Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Pathology</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Pathophysiology</td>
<td>3</td>
</tr>
<tr>
<td>Basic Principles of Anesthesia</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Clinical Practicum</td>
<td>2</td>
</tr>
<tr>
<td>Foundations of Anesthesia Practice</td>
<td>2</td>
</tr>
<tr>
<td>Assessment and Monitoring in Anesthesia</td>
<td>3</td>
</tr>
<tr>
<td>Regional Anesthesia/Pain Management</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Theory/Practice I-VI</td>
<td>3</td>
</tr>
<tr>
<td>Professionalism: Aspects</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Theory and Research</td>
<td>2</td>
</tr>
<tr>
<td>Health Care Research</td>
<td>3</td>
</tr>
<tr>
<td>Thesis/Capstone Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Nurse Anesthesia Courses

NURA 800 Professional Aspects of Anesthesia (3). 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 anesthesiology will be presented. LEC

NURA 801 Introduction to Clinical Practicum (2). 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/anesthetic interventions for pathological states. Prerequisite: Permission of Instructor. LEC

NURA 805 Clinical Anatomy (4). An intensive study of the major anatomical systems and regions of the body which have clinical significance for anesthetists and others. Particular attention is 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). 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 807 Advanced Pathophysiology (3). This course is an analysis of complex interrelationships and interdependence of organ systems in health and disease. The focus will be on the central concepts of pathophysiology of the cellular, tissue, and system levels. Selected content relating to pulmonary, cardiovascular, renal, gastrointestinal, endocrine, and immune systems is included. Prerequisite: Permission of the instructor. LEC

NURA 810 Foundations of Anesthesia Practice (2). The course introduces the student to the basic foundations of nurse anesthesia. Principles of anesthesia are integrated with the theories and concepts relative to the art and science of practice. The fundamentals of didactic knowledge as applied to the clinical environment are addressed. The course is designed to provide students with the basic understanding of pathological states that require them to engage in critical thinking to provide safe anesthesia care. Prerequisite: Permission of Instructor. Corequisite: NURA 801. LEC

NURA 811 Advanced Theory in Anesthesia I (2). This is the first of six courses relative to the didactic study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of obstetrical and pediatric patients. Students will participate in case scenarios and threaded discussions via the Internet to enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. Online threaded discussions will be provided, allowing interaction between students and the instructor 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). This is the second of six courses relative to the study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of orthopedic procedures along with the fluid and electrolyte needs of patients during surgical interventions. Students will participate in case scenarios and threaded discussions via the Internet to enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. Online threaded discussions will be provided, allowing interaction between students, and between students and the instructor 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 (3). This is the third of six courses relative to the study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of oncologic, ophthalmologic, ear, nose, and throat, and orthopedic surgery procedures. Students will participate in case scenarios and threaded discussions via the Internet to enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. Online threaded discussions will be provided, allowing interaction between students, and between students and the instructor 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). This is the fourth of six courses relative to the study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of obstetrical and pediatric cases and various transplantations. Students will participate in case scenarios and threaded discussions via the Internet to enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. Online threaded discussions will be provided, allowing interaction between students, and between students and the instructor 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). This is the fifth of six courses relative to the study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of the neuropsychological and the critically ill or injured. Students will participate in case scenarios and threaded discussions via the Internet to enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. Online threaded discussions will be provided, allowing interaction between students, and between students and the instructor 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 816 Advanced Theory in Anesthesia VI (3). This is the sixth of six courses relative to the study of the art and science of nurse anesthesiology. Students will acquire the knowledge base pertinent to the perioperative anesthetic management of the critically ill and injured. Students will participate in case scenarios and threaded discussions via the Internet to enhance their critical thinking, problem-solving skills and ability to synthesize didactic information to the clinical environment. Online threaded discussions will be provided, allowing interaction between students, and between students and the instructor 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 821 Advanced Practicum in Anesthesia I (2). This is the first of six courses relative to the application of the art and science of nurse anesthesiology. 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 (3). This is the second of six courses relative to the application of the art and science of nurse anesthesiology. 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 (3). This is the third of six courses relative to the application of the art and science of nurse anesthesiology. 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. CLN

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NURA 824 Advanced Practicum in Anesthesia IV (2). This is the fourth of six courses relative to the application of the art and science of nurse anesthesia. 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. LEC

NURA 825 Advanced Practicum in Anesthesia V (3). This is the fifth of six courses relative to the application of the art and science of nurse anesthesia. 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 to cognitive, psychomotor, and affective skills appropriate to a professional nurse anesthetist. Prerequisite: Permission of Instructor. LEC

NURA 826 Advanced Practicum in Anesthesia VI (3). This is the sixth of six courses relative to the application of the art and science of nurse anesthesia. 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. LEC

NURA 830 Chemistry and Physics of Anesthesia (3). Chemical and physical principles involved in anesthesia including states and properties of matter, laws governing the behavior of gases, flow and vaporization, oxidation and combustion; principles of electricity and electrical safety; chemical properties and structure of organic and inorganic substances. Course will also cover pertinent areas of biochemistry relative to anesthesia practice. Prerequisite: Permission of instructor. LEC

NURA 832 Basic Principles of Anesthesia Practice (3). 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 834 Advanced Assessment and Monitoring in Anesthesia and Acute Care (3). Systems approach to advanced assessment of patients. Principles of monitoring in the evaluation and perioperative care of patients. Emphasis will be on the cardiovascular, pulmonary, endocrine, and neurologic systems and their relation to the assessment and monitoring of patients in the anesthesia setting. Prerequisite: Permission of Instructor. LEC

NURA 839 Regional Anesthesia/Pain Management (2). 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. 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 890 Graduate Research (1-3). Research leading to the submission of a master's thesis or master's field project for the Master of Science in Nurse Anesthesia. Independent scientific investigation in nurse anesthesia. Must be approved by and under the supervision of the student's research advisor. In partial fulfillment of the requirements for the master's degree. Prerequisite: Consent of advisor. LEC

NURA 891 Introduction to Theory and Research Methods (2). The purpose of the course is to acquaint students with the OT profession and the methods used in conducting research. Students will learn the principles of research design and ethics involved in research. Prerequisite: Permission of Instructor. LEC

NURA 895 Capstone Project (1-3). The capstone project is the culminating project of the master's degree course of study. The project requires a research-focused problem to be identified and examined in depth. The student will include application of an intervention suitable to their area of focus and dissemination of the project findings to a targeted audience is expected. Prerequisite: Permission of the instructor. LEC

NURA 899 Thesis (1-3). Restricted to the writing, preparation of the final thesis, based upon independent research and in partial fulfillment of the requirements for the master's degree. Thesis must be defended prior to degree completion. Prerequisite: Consent of advisor and NURA 890. THÉ

NURS 3901 Rainbow Blvd., Kansas City, KS 66160

Graduate Adviser: Jeff Radel
Chair: Winifred W. Dunn

KU’s occupational therapy program is ranked second in the nation among public universities in the 2009 edition of U.S. News & World Report’s “America’s Best Graduate Schools.” The Master of Occupational Therapy is an entry-level professional degree for students who want to become occupational therapists. During the first year, students enroll in undergraduate courses to earn a B.S. in Occupational Studies. During the second and third years, students take graduate-level courses that lead to the M.O.T.
Occupational Therapy

...fice at KU Medical Center for information on other eligibility requirements and for current information.

Eligible students should begin the application process by submitting the School of Allied Health application and fee before December 31. Complete the application process by submitting other application forms (available from the OT office or online) and an official college transcript between July 1 and December 31. Application procedures are subject to change. Check the OT Education Web site or contact the department directly for updates.

The occupational therapy admission committee reviews applications. Selection is based on the applicant’s strength in meeting all eligibility criteria. If selected for admission, the student begins the three-year program the following summer at KU Medical Center. Contact the department or visit our Web site for application materials and further information about the program.

International students or those for whom English is a second language must meet minimum English Proficiency Requirements. See [www2.kumc.edu/aa/gradstudies/grad_adm.htm](http://www2.kumc.edu/aa/gradstudies/grad_adm.htm) for information. International students may have additional requirements for visa, residency, and citizenship status. Students should contact the KUMC Office of International Programs for guidance regarding these issues during the application process.

All prospective students are encouraged to obtain advising from the OT education department at KU Medical Center or to schedule an appointment through the University Advising Center on the Lawrence campus.

Curriculum. The Master of Occupational Therapy is a three-year, full-time program starting each summer session. During the first year, students enroll in undergraduate courses focusing on occupational studies. Students who complete these courses earn a B.S. in Occupational Studies. During the second and third years, students take graduate-level courses that lead to the M.O.T. Completion of both levels allows the individual to sit for the national certification examination. Courses include basic science, occupational therapy theory and application, clinical reasoning, and practice. The student must complete a research project with a group of students and a faculty mentor. Students must complete:

- 90 credit hours of prerequisite work.
- 39 hours of undergraduate academic courses and part-time practice in the occupational therapy department.
- 44-51 graduate hours in occupational therapy courses and fieldwork. The academic portion of the program is punctuated with full time Level II Fieldwork experiences, giving students ample opportunity to integrate practical experience with classroom learning.
- 12 hours of Level II Fieldwork.

Level II Fieldwork. FW II is a vital part of an occupational therapy education and a degree requirement. FW II courses are full-time practicum experiences carried out in service delivery settings. Students take FW II during the Spring 2a and Fall 3 semesters. An optional FW II experience may be scheduled during the Summer semester. Each student must be prepared to complete at least one FW II experience in Kansas but outside the greater Kansas City area (as defined by the OT education department). FW II may only be scheduled and arranged through the academic fieldwork coordinator or the fieldwork assistant. Students are responsible for transportation to and from fieldwork centers, living arrangements and expenses, tuition and fees for 12 to 18 credit hours, and any other expenses.

Typical Course Sequence. Both undergraduate and graduate courses for the entry-level M.O.T. degree are outlined below.

**Summer 1 (9 credit hours)**
- OCTH 388 Human Anatomy ............................................. 6
- OCTH 395 Orientation to the Occupational Therapy Profession .... 3

**Fall 1 (16 credit hours)**
- OCTH 401 Theory and Practice in Occupational Therapy .......... 2
- OCTH 415 Communication and Professional Relations .......... 1
- OCTH 422 Analysis and Adaptation of Occupations I ............... 4
- OCTH 430 Practicum I ................................................. 2
- OCTH 435 Life Span Development from an Occupational Perspective .... 4
- OCTH 455 Neuroscience Analysis of Occupational Performance ...... 3

**Spring 1 (14 credit hours)**
- OCTH 445 Contexts of Occupations .................................... 2
- OCTH 462 Physical Considerations in Facilitating Occupational Performance .............................................. 3
- OCTH 468 Facilitating Physical Performance Lab ...................... 1
- OCTH 470 Practicum II ................................................ 7
- OCTH 472 Psychiatric Considerations in Facilitating Occupational Performance .................................................. 3
- OCTH 482 Analysis and Adaptation of Occupations II ............ 3
- OCTH 490 Evaluation of Assessment of Occupational Performance ...... 2
- OCTH 704 Planning Intervention in Occupational Therapy .......... 2
- OCTH 710 Service Management: Delivery Systems .................. 1
- OCTH 720 Occupational Therapy Practice Models ................. 7
- OCTH 730 Practicum III ............................................... 2
- OCTH 763 Evidence-Based Practice .................................... 2

**Spring 2a (minimum of 6 credit hours—January through March)**
- OCTH 770 Level I Fieldwork ........................................... 6
- OCTH 780 Elective Level II Fieldwork (instructor permission required) ... 3-6

**Spring 2b (6 credit hours—April and May)**
- OCTH 725 The Research Process ......................................... 1
- OCTH 750 Case-Based Clinical Reasoning .............................. 3

**Summer (minimum of 3 credit hours)**
- OCTH 780 Elective Level II Fieldwork (instructor permission required) ... 3-6
- OCTH 776 Population-Based Health Care ................................ 2
- OCTH 775 Level II Fieldwork, Part 2 .................................... 2
- OCTH 780 Elective Level II Fieldwork (instructor permission required) ... 3-6

**Fall 3 (minimum of 8 credit hours)**
- OCTH 755 Issues and Trends Seminar ................................. 1
- OCTH 760 Professional Development and Leadership in Service Management .......... 3
- OCTH 765 Family and Community Service Systems .................. 3
- OCTH 790 Research Practicum ......................................... 3

### Master of Occupational Therapy Courses

**OCTH 680 Independent Study (1-6)**

**OCTH 704 Planning and Intervention in Occupational Therapy (2).** Using a problem-based clinical reasoning approach this course examines the impact of common medical conditions on occupational performance with individuals of all ages. Students will practice developing plans and interventions for occupational performance problems presented by varying medical conditions. LEC

**OCTH 710 Service Management: Delivery Systems (1).** This course is designed to provide the student with an understanding of how the systems in which service occurs impact practice. Financial, regulatory, and personnel issues across a variety of settings will be addressed. LEC

**OCTH 715 Supervision, Team Relations, and Management Communication (1).** This course emphasizes entry level skills related to supervision, teamwork, and communication within practice environments. LEC

**OCTH 720 Occupational Therapy Practice Models (7).** In a series of modules this course introduces the student to selected occupational therapy practice models. Theoretical background, assessments, and interventions approaches common to each model are described. The lab component of this class consists of two parts: 1) learning of assessment and intervention techniques specific to different practice models and 2) practice in selecting and applying appropriate practice models for different occupational performance problems. LEC

**OCTH 725 The Research Process (1).** An introduction to the research process including research design, methods, sampling, measurement, and research ethics. Qualitative and quantitative research are discussed. Research consumer skills are emphasized. LEC

**OCTH 730 Practicum III (2).** Selected field experiences provide opportunities for critical thinking and problem solving in a variety of contexts and service provision models where occupational therapy is provided to persons with disabilities. Students will have opportunities to provide assessment and intervention to at least one individual in two different settings, under the supervision of an occupational therapy fieldwork educator. Students will determine the relevant variables for intervention, work collaboratively with others within the setting and analyze and reflect upon their experience as they prepare for Level II fieldwork experiences. LEC

**OCTH 738 Special Topics in Practice (1-2).** 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).** Students will apply the clinical reasoning process to individuals with occupational performance needs. Cases will be presented from the student’s Level II fieldwork experience. In a problem solving format, student will evaluate services received by the individual and discuss alternatives given a variety of situations. LEC

50
The post-professional Doctor of Occupational Therapy is an advanced-practice degree for occupational therapists who wish to upgrade their knowledge and skills to meet the increasing demands of complex practice issues.

Doctor of Occupational Therapy Courses

OTD 750 Clinical Reasoning and Problem Based Learning (3). 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). 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: Permission to O.T.D. Program or permission of instructor. LEC

OTD 776 Population-Based Health Care (3). 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 and restoration of health and wellness and the prevention of disease. Interpersonal and 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. LEC

Post-Professional Doctor of Occupational Therapy

www.ot.kumc.edu

The O.T.D. is an advanced-practice degree for occupational therapists wishing to upgrade their knowledge and skills to meet the increasing demands of complex practice issues. The O.T.D. focuses on specialization and professional leadership in practice. The program is flexible to meet the needs of the practicing therapist. The curriculum is based on four key components: evidence-based practice, professional leadership, advanced practice, and teaching. The student identifies an area of focus related to leadership (e.g., public policy, administration), advanced practice (e.g., gerontology, low vision), and teaching (e.g., college, client/patient, continuing education).

Admission. Applicants must meet general admission requirements for graduate studies at KU. Additional departmental requirements for admission to the O.T.D. program include the following:

1. Degree from an accredited entry-level occupational therapy program (college transcripts must be provided).
2. Master’s degree in occupational therapy (M.S. in OT or M.O.T.) or a related field (college transcripts must be provided). Students with bachelor’s degrees may apply but will be required to take prerequisite master’s-level course work before beginning the O.T.D. program.
3. The applicant must be certified through NBCOT. The applicant must currently be practicing as an occupational therapist or have past experience as a practicing occupational therapist (curriculum vitae and proof of certification as an OT must be provided).
4. Three letters of recommendation (one must be from a work supervisor).
5. A brief statement of career goals (200 to 400 words).
6. Application materials must be submitted by June 1 for fall admission, November 1 for spring admission, and April 1 for summer admission.

International students or those for whom English is a second language must meet minimum English Proficiency Requirements. See www2.kumc.edu/gradstudies/grad_adm.htm for information. International students may have additional requirements for visa, residency, and citizenship status. Students should contact the KUMC Office of International Programs for guidance regarding these issues during the application process.

Curriculum. The student must complete the core and elective course work with an overall grade-point average of 3.0 or higher on a 4.0 scale. The student must complete 36 credit hours including course work and a focused capstone project. The capstone is an individually designed, mentored project that demonstrates a synthesis of the knowledge and skills developed in the program. Upon completion of the O.T.D., students are prepared for careers in education, advanced practice, or professional leadership and administration.

Core Curriculum. A minimum of 36 credit hours is required. The core curriculum or the individual student’s plan may change to include additional course work.

| Evidence-based practice (2 courses) | 6 |
| Professional leadership (3 courses) | 9 |
| Specialty practice (5 courses) | 15 |
| Teaching practicum (1 course) | 3 |
| General elective (1 course) | 3 |

Doctor of Occupational Therapy Courses
OTD 780 Practicum in Specialty Practice Area (3). 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 findings to their 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. LEC.

OTD 783 Evidence-Based Practice (3). 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). This is an elective course that allows students to pursue the areas of specialty practice under the direction of a faculty member of their choice. This course is designed to support students’ learning as they complete their pre-doctoral studies. Investigation of special issues relevant to an area 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). 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 foundational skills for collecting, analyzing and interpreting qualitative data. Prerequisite: Permission of Department. Lecture course. LEC.

OTD 835 Quantitative Research for Applied Science (3). 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 (3). 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 and the equivalent in online teaching or written materials. Teaching experiences can include M.O.T. program lectures or labs, continuing education workshops, patient education programs, or staff in-services or another experience that meets the time and competency requirements. Prerequisite: A graduate teaching methods course such as NRSG 873, NRSG 874, CT 740, CT 840 PRA.

OTD 860 Theory and Practice in Occupational Therapy (3). This course will cover major theoretical frameworks and practice models in occupational therapy. The history of occupational therapy will be reviewed as a basis to provide a foundation 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). 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 proposed method. Critical feedback will be incorporated into a final presentation and paper. Prerequisite: Permission of department. LEC.

OTD 875 Professional Development (3). This course will explore professional development from an advanced practice perspective. Students will explore the impacts of advanced practice such as leadership (both work and professional), management, group and system communication and change agency. They will explore...
International students may have additional requirements for visa, residency, and citizenship status. Students should contact the KUMC Office of International Programs for guidance regarding these issues during the application process.

Curriculum. The student must complete a minimum of 9 hours of core course work related to theory and disability issues, a 3-hour graduate neuroscience course, 12 hours of research courses (including thesis hours), and 12 elective hours, with an overall grade-point average of 3.0 or higher on a 4.0 scale. The student must pass a final oral examination that includes defense of the thesis.

Core Courses Offered in the M.S. in Occupational Therapy Program

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>OTMS 701</td>
<td>Professional Development</td>
<td>3</td>
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<tr>
<td>OTMS 735</td>
<td>Practice Models for Applied Science</td>
<td>3</td>
</tr>
<tr>
<td>OTMS 801</td>
<td>Applied Neuroscience</td>
<td>3</td>
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<tr>
<td>OTMS 835</td>
<td>Interpreting Research for Applied Science</td>
<td>3</td>
</tr>
<tr>
<td>OTMS 799</td>
<td>Special Topics in Occupational Therapy</td>
<td>1-6</td>
</tr>
<tr>
<td>OTMS 890</td>
<td>Graduate Research (requires consent of faculty member)</td>
<td>1-6</td>
</tr>
<tr>
<td>OTMS 899</td>
<td>Thesis (requires consent of faculty member)</td>
<td>1-6</td>
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</tbody>
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Elective Options. Each student selects at least one 1-credit-hour professional seminar, one 2-credit-hour theory course, and three 3-credit-hour general graduate-level elective courses to complement his or her program. These selections must be approved by the student’s advisor.

M.S. in Occupational Therapy Courses

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<tr>
<th>Course Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>OTMS 699</td>
<td>Special Projects</td>
<td>1-6</td>
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<tr>
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<td>Thesis</td>
<td>1-6</td>
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Admission. Only students seeking the Ph.D. degree are admitted. The interdisciplinary program committee reviews each applicant’s preparation. Acceptable preparation must include basic training in statistics and design and completion of an empirical research study or thesis. If an applicant does not have adequate preparation for doctoral-level work, he or she must develop satisfactory research skills before formally entering the program. The program committee may recommend a range of options, from requiring the student to take at least 6 hours of basic statistics and methods courses and complete an independent research project, to requiring the student to earn a master’s degree.

The admission review also considers the fit between the student’s research interests and the design and goals of the program. Applicants who qualify for admission must investigate discipline-specific programs with which their interests intersect and submit a rationale for why their research and career goals can only be met by this program. The applicant’s leadership experience and potential to contribute to knowledge generation and transfer through research, teaching, or service and the extent to which the applicants’ interests and goals correspond to those of available faculty also are considered. Applicants must meet general admission requirements for graduate studies at KU. All applicants must submit a personal statement of career goals and professional development, three letters of recommendation, and one copy of all graduate and undergraduate transcripts. Application materials must be received by February 1 for fall admission.

International students or those for whom English is a second language must meet minimum English Proficiency Requirements. See www2.kumc.edu/aao/gradstudies/grad_adm.htm for information. International students may have additional requirements for visa, residency, and citizenship status. Students should contact the KUMC Office of International Programs for guidance regarding these issues during the application process.

Curriculum. The program includes a core curriculum for all students and gives each student the opportunity to create a course of study to meet her or his professional objectives. Students receive a foundation of basic knowledge as well as multidisciplinary perspectives on issues and problems related to individuals with disabilities. On completion of this program, students are prepared for academic, research, and leadership careers with institutions and agencies serving individuals with disabilities and their families.

In addition to general Graduate Studies requirements, basic requirements for the Ph.D. degree in therapeutic science include

1. Successful completion of a minimum of 57 credit hours, comprising at least 6 hours of core courses, 12 hours of research tools, 21 hours of elective courses related to the student’s area of emphasis, and 18 hours of doctoral dissertation research.
2. Competence in applied research skills, teaching, and/or service demonstrated through successful completion of the Graduate Studies Foreign Language or Other Research Skill requirement.

3. Students become candidates for the Ph.D. after successful completion of core courses, FLORS, and comprehensive examination (defense of the dissertation proposal).

4. Satisfactory completion of a written dissertation based on original research.

5. Successful oral presentation and defense of the dissertation. It is typical for students to require the equivalent of at least three years of full-time study to fulfill these requirements.

Core Courses Offered in the Therapeutic Science Ph.D. Program

- **TS 800 Research Proseminar** (1). 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). 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. (Same as OTMS 705) LEC

- **TS 850 From Beliefs to Evidence** (1). 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). 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). Assessment of how 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). 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 processes that have occurred within their own professions. May be taken more than once for a total of two credits. LEC

- **TS 990 Dissertation in Therapeutic Science** (1-9). Research experience leading to dissertation for doctoral students in Therapeutic Science. RSH

Elective Options. Each student selects graduate-level elective courses to complement his or her program. These selections must be approved by the student’s adviser.

Therapeutic Science Courses

- **TS 800 Research Proseminar** (1). 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). 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. (Same as OTMS 705) LEC

- **TS 850 From Beliefs to Evidence** (1). 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). 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). Assessment of how 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). 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 processes that have occurred within their own professions. May be taken more than once for a total of two credits. LEC

- **TS 990 Dissertation in Therapeutic Science** (1-9). Research experience leading to dissertation for doctoral students in Therapeutic Science. RSH
Degree Requirements: Professional Program. The professional program is a 36-month, full-time program beginning each summer session. Successful completion of 94 credit hours of studies is required. Courses include basic science, clinical science, clinical procedures, and clinical practice. Additionally, the student must complete a comprehensive examination and a research project.

Post-Professional D.P.T.
The post-professional Doctor of Physical Therapy degree gives practicing physical therapists the opportunity to advance their knowledge in physical therapy. The program focuses on differential diagnosis, medical imaging, and evidence-based practice. Students choose one of three specialty tracks (orthopedics, neuromusculoskeletal, or geriatrics) and complete a thesis or research project. It is expected that the equivalent of at least three years of full-time study will be needed to fulfill these requirements.

Ph.D. in Rehabilitation Science
The Ph.D. degree in rehabilitation science prepares qualified individuals for leadership positions in research and academia. The program focuses on advancing the science of medical rehabilitation and elucidating the scientific basis for the procedures and processes used in clinical practice. Research includes human and animal studies that promote an understanding of the pathophysiology of injury, disease, functional impairment, and associated disabilities and espouse the rationale for therapies that alleviate impaired human function and related physical and mental disabilities.

Admission. The program is open to applicants with the B.S. degree or its equivalent in any of the relevant sciences. Applicants do not have to be physical therapists; however, each candidate is encouraged to have a broad background in the biological sciences (including anatomy, physiology, neuroscience, biochemistry, genetics, and cellular and molecular biology), calculus, and statistics. Other admission requirements include:

1. A minimum grade-point average of 3.0 on a 4.0 scale in the last 60 credit hours of course work.
2. A satisfactory score on the general Graduate Record Examination within the previous four years.
3. For international applicants, a satisfactory score on the Test of English as a Foreign Language within the previous two years.
4. Three letters of reference from persons familiar with the applicant’s professional and academic abilities.
5. A curriculum vitae detailing work history, formal education, continuing education, professional organizations, honors and awards, research experience, publications, presentations, and grants, etc.
6. Transcripts from all colleges attended.
7. A written educational plan describing the applicant’s goals and objectives.

Degree Requirements: Ph.D. in Rehabilitation Science. In addition to general requirements, the basic requirements for the Ph.D. degree include:

1. Successful completion of a minimum of 51 credit hours of studies, comprising at least 21 hours of core courses, 8 hours of research tools, one course in a Foreign Language or Other Research Skill (FLORS), 12 hours of doctoral dissertation research, and 6 hours of cognate elective courses.
2. Students become candidates for the Ph.D. after successful completion of core courses, FLORS, and the qualifying and comprehensive examinations.
3. Satisfactory completion of a dissertation based on original research.

It is expected that the equivalent of at least three years of full-time study will be needed to fulfill these requirements.

D.P.T./Ph.D. Combined Degree Program
The combined degree program integrates the professional D.P.T. degree in physical therapy with the Ph.D. degree in rehabilitation science and clinical work experience. It offers outstanding nonclinician applicants the opportunity to pursue both degrees simultaneously. This accelerated program prepares highly motivated individuals for leadership positions in research and academia. Qualified students must declare their desire to be considered for the combined degree during the application deadline. For prerequisite courses taken more than once (within the last 10 years), an average of all grades received is used for grade-point average calculation.

5. General Graduate Record Examination scores.
6. Clinical experience in physical therapy. A minimum of 32 hours in observation, volunteer, or work under the supervision of a physical therapist. Sixteen of those hours must be in a hospital setting.
7. For international applicants, a satisfactory score on the Test of English as a Foreign Language.

Degree Requirements: Post-Professional Program. In addition to general requirements, the basic requirements for the post-professional D.P.T. degree include successful completion of 27 credit hours of studies, including 18 hours of core courses, 1 course in a Foreign Language, and 3 hours of elective. Graduates of a CAPTE-accredited physical therapy program may qualify for an 18-credit-hour program, provided the master’s degree was received no more than seven years before starting the post-professional program.

Admission. The applicant must meet general entrance requirements qualifying them for regular admission to Graduate Studies. Departmental admission requirements include:

1. A baccalaureate or master’s degree in physical therapy from a CAPTE-accredited program.
2. A résumé detailing work history, formal education, continuing education, professional organizations, honors and awards, publications and presentations.
3. Three letters of recommendation.
4. A personal essay.

Allied Health

The Ph.D. degree in rehabilitation science prepares leaders in research and academia.

KU’s physical therapy graduate program is 12th in the nation among public universities in the 2009 edition of U.S. News & World Report’s “America’s Best Graduate Schools.”

A joint D.P.T./Ph.D. degree in physical therapy and rehabilitation science is offered.
Some departments do not offer all courses in any one semester. See the online Schedule of Classes at www.registrar.ku.edu for current course offerings.
treated by the practicing physical therapist will be exposed to compare diagnostic tests and their values. The course will focus on the need to use diagnostic tests and their implications in diagnosis and treatment. The course will be delivered via the web. Prerequisite: Admission into the post-professional DPT program, or approval by the instructor. LEC

PTRS 815 Case Studies in Pathophysiology (2). Physical therapists need skills to relate human pathophysiology to its clinical presentation. The interrelationships of function and dysfunction at the molecular, cellular and tissue level (pathology), organ and system level (impaired) and to the total human body (functional limitation), will be covered in each of the chapters. Diagnostic and treatment materials will be tailored to the patient population served by the therapist. Prerequisite: Admission into post-professional DPT program, or consent of instructor. LEC

PTRS 817 Ethics in Health Care (3). Basic ethical concepts, principles, relevant theories and ethical decision making models applied to major contemporary health care issues and dilemmas facing allied health professionals. Development of skills for ethical clinical decision making is the focus. Prerequisite: Admission into the post-professional DPT program, or consent of instructor. LEC

PTRS 820 Clinical Education III (2). Comprised of a four week clinical internship at an assigned facility. Students will be exposed to a clinical setting and continuous opportunities for application of didactic course work. Emphasis will be placed on the development of patient care skills (701), the application of general physical therapy evaluation and treatment skills (711, 712, 745, 756, 750, 855, 785), preliminary documentation (702), differential diagnosis of general medical conditions (880), evidence based therapy practice (750) and basic physical therapy skills and procedures in the clinical setting (703, 704, 705). Prerequisite: Successful completion of the first 3 semesters of the DPT curriculum, or consent of instructor. CLN

PTRS 822 Exercise Science I (3). 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 exercise benefits. Prerequisite: Successful completion of the first 3 semesters of the DPT curriculum, or consent of the instructor. LEC

PTRS 826 Cardiopulmonary Physical Therapy (4). 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. Prerequisite: Successful completion of the first 4 semesters of the DPT curriculum or permission of instructor. LEC

PTRS 828 Medical Imaging (3). 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 into the post-professional DPT program, or consent of instructor. LEC

PTRS 830 Clinical Education IV (2). Is comprised of a four week clinical internship at an assigned facility. Students will be exposed to a clinical setting and continuing opportunities for application of didactic course work. Emphasis will be placed on the development of communication and interpersonal skills (701), the application of general physical therapy evaluation and treatment skills (711, 712, 745, 746, 750, 785), differential diagnosis of general medical conditions (880), evidence based physical therapy practice (750, 860, 861), assessing patients with neuromuscular conditions (850, 851, 852), cardiopulmonary conditions (826) and musculoskeletal conditions (846) as well as the basic physical therapy skills and procedures in the clinical setting (703, 704, 705). Prerequisite: Successful completion of the first 6 semesters of the DPT curriculum (including Clinical Education I, II, III & IV), or permission of instructor. CLN

PTRS 840 Allied Health I (2). This course is comprised of a four week clinical internship at an assigned facility. Students will be exposed to a clinical setting and continuing opportunities for application of didactic course work. Emphasis will be placed on the development of communication and interpersonal skills (701), the application of general physical therapy evaluation and treatment skills (711, 712, 745, 756, 750, 855, 785), preliminary documentation (702), differential diagnosis of general medical conditions (880), evidence based physical therapy practice (750), assessing patients with neuromuscular conditions (850, 851, 852), cardiopulmonary conditions (826) and musculoskeletal conditions (846) as well as the basic physical therapy skills and procedures in the clinical setting (703, 704, 705). Prerequisite: Successful completion of the first 6 semesters of the DPT curriculum, or permission of instructor. LEC

PTRS 845 Musculoskeletal Physical Therapy II (3). Incorporates concepts from PTRS 710 (Advanced Human Anatomy), PTRS 703 (Physical Therapy Tests and Measures), PTRS 711 (Applied Kinesiology and Biomechanics), and PTRS 745 (Musculoskeletal Physical Therapy I). Terminology, examination, evaluation, development of a treatment plan, treatment techniques and basic differential diagnostic skills for the spine are taught through lecture, demonstration and student participation. Prerequisite: Successful completion of the first 3 semesters of the DPT curriculum, or consent of instructor. CLN

PTRS 846 Musculoskeletal Physical Therapy III (3). Incorporates concepts from Advanced Human Anatomy, Physical Therapy Tests and Measures. Applied Kinesiology and Biomechanics, Musculoskeletal Physical Therapy I, and Musculoskeletal Physical Therapy II. Terminology, examination, evaluation, development of a treatment plan and treatment techniques and advanced differential diagnostic skills for the temporomandibular joint (TMJ) complex and complex peripheral and/or spinal disorders are taught through lecture, demonstration and student participation. Prerequisite: Successful completion of the first 4 semesters of the DPT curriculum or permission of instructor. LEC

PTRS 850 Neuroscience (4). 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 with which these systems interact to produce appropriate responses to external demands will be discussed. The behavioral consequences of damage to each system will be integrated throughout the course. Prerequisite: Successful completion of the first 4 semesters of the DPT curriculum or permission of instructor. LEC

PTRS 851 Control of Movement (2). Will combine the physiological, neuro- psychological and biological factors that contribute to the control of voluntary movement and the learning of motor skills. Changes over the life span, as well as changes secondary to pathology, will be covered, with emphasis on the effects of brain damage. The development of the control of movement, neuralplasticity, and the effects of practice will be discussed. The course will focus on the relationship of our scientific knowledge in motor control and motor learning to the practice of physical therapy. The course will introduce examination and treatment of impairments for persons with neuromuscular pathologies. Students will be pre- sented with a simple case study of a patient with a complex neurologic problem. Prerequisite: Successful completion of the first 5 semesters of the DPT curriculum, or permission of instructor. LEC

PTRS 852 Neurologic Physical Therapy I (4). Will integrate neurophysiology and neuroanatomy into the clinical presentation of adults with neurologic pathology. Students will learn the etiology, epidemiology signs, and symptoms of selected neurologic conditions. The medical management of patients with central and peripheral nervous system disorders will be presented in relationship to the practice of physical therapy. The course will introduce examination and treatment of impairments for persons with neuromuscular pathologies. Students will be presented with a simple case study of a patient with a complex neurologic problem. Prerequisite: Successful completion of the first 5 semesters of the DPT curriculum, or permission of instructor. LEC

PTRS 853 Neurologic Physical Therapy II (4). This course will explore functional mobility deficits in patients with neurologic pathology. Building upon previous content, students will acquire the relevant knowledge of the relationship of pathology, impairments, and involvement of other systems to functional deficits for adults with neurologic pathology. Contemporary motor control and motor learning theories and research evidence will be emphasized in the development of appropriate intervention programs. Psychosocial factors will also be con-
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sidered in the discussion of complex patient cases. Prerequisite: Successful completion of the first 6 semesters of the DPT curriculum or permission of the instructor. LEC

**PTRS 855** Pharmacology for Physical Therapists (1). Pharmacological background for the clinical treatment of patients referred to physical therapy. Fundamentals of the actions of drugs including mechanisms of therapeutic and adverse effects. Prerequisite: Successful completion of the first 3 semesters of the DPT curriculum, or consent of instructor. LEC

**PTRS 857** Research Design and Method in Evidence-Based Practice (2). An introduction to research in the evidence-based practice including mixed methods and multi-media resources, research process, measurement theory, (reliability and validity), research designs, experimental design principles, research ethics, critical review and analysis of research publications, and writing of a systematic literature review. Throughout, emphasis is placed on clinical research pertinent to evidence-based practice. Prerequisite: Admission to the PhD in Rehabilitation Science program or permission of instructor. LEC

**PTRS 858** Evidence-Based Rehabilitation of Patients Post-CVA (3). This course will provide students with the applied knowledge to medically screen patients for symptoms and signs that require the expertise of other health care professionals. Patient cases currently treated by the practicing physical therapist will be used to compare diagnostic tests and values. The course will focus on comorbidities and their implications in diagnosis and treatment. The course will be delivered through the web. Prerequisite: Admission into the post-professional DPT program, or approval of the instructor. LEC

**PTRS 860** Evidence-Based Research Practicum I (1). Supervised and directed experiences in conducting evidence-based research activities. The research activities involved in this course are broadly defined with emphasis on the presentation and communication of an evidence-based research project. The student will be supervised by a member of the faculty. This is a two-semester course. Prerequisite: Successful completion of the first 5 semesters of the DPT curriculum or permission of instructor. RSH

**PTRS 861** Evidence-Based Research Practicum II (1). Supervised and directed experiences in conducting evidence-based research activities. The research activities involved in this course are broadly defined with emphasis on the presentation and communication of an evidence-based research project. The student will be supervised by a member of the faculty. Prerequisite: Successful completion of the first 6 semesters of the DPT curriculum, or consent of instructor. RSH

**PTRS 862** Pathobiology of Human Function I (4). A study of the biology and pathophysiological processes that impair human function will highlight the mechanisms by which cell/tissues repair and/or adapt as a result of injury and aging. Emphasis will be placed on the functional impairments resulting from the pathological condition, and on the body’s endogenous ability to adapt or reverse the effects of disease or injury. Prerequisite: Entry into the PhD in Rehabilitation Science program, or permission of instructor. LEC

**PTRS 863** Pathobiology of Human Function II (4). A study of biology and pathophysiological 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

**PTRS 865** Independent Study (1-3). Individually negotiated learning experiences appropriate to the interests and background of the student. Prerequisite: Admission to the post-professional DPT library and multi-media resources used in analyzing patient care needs 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 (including Clinical Education I, II, III, IV, & V), or permission of instructor. CLN

**PTRS 870** Teaching Practicum (1-3). 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

**PTRS 873** Research Practicum (1-3). This course is designed to provide supervised research experience in various laboratories in the department. Prerequisite: Entry in the PhD in Rehabilitation Science program, or consent of instructor. RSH

**PTRS 875** Clinical Practicum (1-3). 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, or consent of instructor. CLN

**PTRS 876** Administration in Physical Therapy (3). Designed to familiarize the entry-level therapist with contemporary issues in health care which impact the delivery of physical therapy, business development and entrepreneurial skills, and organizational and human resource skills. Changes in the US health care system will be discussed, including managed care concepts, essential elements and principles of management in health care organizations, and an overview of human resource sources, marketing, fiscal and operational management. Prerequisite: Successful completion of the first 6 semesters of the DPT curriculum, or consent of instructor. LEC

**PTRS 880** Differential Diagnosis of General Medical Conditions (3). 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: For the DPT program: Successful completion of semester 1 of the DPT curriculum, or permission of instructor. For the post-professional DPT program: admission into the program, or consent of instructor. LEC

**PTRS 920** Clinical Education VI (3). Sixteen 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 (including Clinical Education I, II, III, IV, & V), or permission of instructor. CLN

**PTRS 921** Clinical Education VI (3). Sixteen 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 (including Clinical Education I, II, III, IV, & V), or permission of instructor. CLN

**PTRS 922** Clinical Education VI (3). Sixteen 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 (including Clinical Education I, II, III, IV, & V), or permission of instructor. CLN

**PTRS 923** Clinical Education VI (4.5). 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 (including Clinical Education I, II, III, IV, & V), or permission of instructor. CLN

**PTRS 962** Motor Control in Rehabilitation (3). This course is designed to enhance students' understanding of sensory-motor control of movement, other factors that can impact and shape expression (kinetic and kinematics) of movement and how this knowledge can be applied for rehabilitation purposes. The primary aim of this course is to enhance critical analysis of the clinical research literature in the field of motor control that focuses on basic science questions and to identify the relevance of that information in the filed of rehabilitation. Prerequisites: Basic knowledge in neuroscience; entry into the PhD in Rehabilitation Science program; or consent of instructor. LEC

**PTRS 970** Instrumentational Analysis of Human Function (3). 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

**PTRS 980** Graduate Research (1-10). Original laboratory investigation conducted under the supervision of a senior staff member. Prerequisite: Entry in the PhD in Rehabilitation Science program, or consent of instructor. RSH

**PTRS 990** Dissertation in Rehabilitation Science (1-10). For students in advanced standing enrolled in the PhD in Rehabilitation Science program. THE

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For online information about graduate programs in the School of Allied Health, see [www.alliedhealth.kumc.edu](http://www.alliedhealth.kumc.edu).