SCHOOL OF MEDICINE

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School of Medicine
2411 Holmes Street
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Vice Dean:
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Julie Banderas, Pharm.D., FCCP (Graduate Studies & Allied Health)
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Nurry Pirani, M.D. (Council on Curriculum)
Sara E. Gardner M.D. (Council on Evaluation)
Adam Algren, M.D. (Council on Selection)
Emily Haury, M.D. (Council of Docents)
Phil Byrne, Ed.D. (Faculty Council)

Academic Chairs:
Michael Artman, M.D. (Pediatrics)
Julie Banderas, Pharm.D., Interim (Biomedical and Health Informatics)
Overview

As a major medical research and educational institution, improving the health of our community is very important to us. Our focus is to create breakthrough research which impacts human health and to educate the next generation of world class physicians who will care for our citizens. UMKC have been meeting our community's healthcare needs for over 40 years utilizing unique educational and research programs within the urban core of Kansas City. We are committed to advancing scientific knowledge that will benefit all of our citizens in order for them to achieve a sustainable future well-being. We are achieving this by maintaining our unique regional partnerships, expanding our scientific research and educational programs, and reaching out to our community for guidance and direction.

Philosophy

The fundamental purpose of medical schools is to educate physicians. The prime objective of all professionals, physicians included, is to apply a sophisticated body of knowledge and skills to the solution of problems faced by people. In doing so, the individual will follow standards of the profession for competence, ethics and communication and will demonstrate commitment to the principles of professionalism - altruism, humanism, excellence and accountability.

Our History

Founded in 1971, UMKC School of Medicine has always been ahead of the curve in training physicians. Our medical degree program and our docent mentoring system have expertly prepared tomorrow's physicians in unique and innovative ways. We have graduated nearly 3,000 physicians in our 41 years of using cutting-edge methods that are now being implemented by other medical schools.

As other institutions retool and rethink their strategies, UMKC School of Medicine has always been at the forefront of medical education. The more time passes, the more we provide our students with the academic, personal and clinical training they need to be leading physicians in the 21st century.

Mission

The mission of the UMKC School of Medicine is to provide and foster excellence, innovation and scholarship in education, research and medical care.

Vision

The vision of the UMKC School of Medicine is to be a leader in academic medicine through innovative programs and vibrant community partnerships.

Goals

The UMKC School of Medicine will foster and support a vibrant health science learning community on the Hospital Hill Campus for students, residents, faculty, staff and community partners. The learning environment will consist of an outstanding academic program and experiences, comprehensive scholar support and a campus culture and environment that promote student, resident, faculty and staff engagement and community participation.

The School of Medicine will lead in innovative medical education programs, including education programs for medical students, graduate students, residents, faculty and community physicians.
The School of Medicine will develop strong research and scholarly programs that improve the health of our community with an emphasis in applied translational research to prevent disease, personalize medicine and improve population health.

**Faculty**

**Allied Health Program**

Lance Carter; Assistant Program Director; Assistant Teaching Professor; M.S.A., AA-C (Case Western Reserve)

Michelle Eaton; Assistant Teaching Professor; PA-C (Wichita State University)

Katherine Ervie; Program Director; Assistant Teaching Professor; PA-C(Butler University), MPAS (University of Nebraska Medical Center)

Melanie Guthrie; Program Director; Assistant Teaching Professor; M.S.A., AA-C (Case Western University)

Cody Sasek: Assistant Teaching Professor; M.P.A.S., P.A.-C, A.T.C. (University of Nebraska Medical Center)

Heather Yates: Assistant Teaching Professor; M.H.S. (Duke University)

**Anesthesiology**

Daozhong Jin; Assistant Research Professor

John Q. Wang; Acting Associate Dean, Research Administration; Westport Anesthesia-Missouri Endowed Chair and Professor; M.D. (Tongji Medical University) Ph.D. (Shanghai Medical University)

**Basic Medical Sciences**

Xiangping Chu; Associate Professor; M.D. (Fudan Univ Shanghai Medical College). Ph.D. (Jiangsu University)

Maria Cole; Associate Teaching Professor; Ph.D. (State University of New York at Stony Brook)

Theodore Cole; Teaching Professor; Ph.D. (State University of New York)

Mingui Fu; Associate Professor; Ph.D. (Peking University)

Rosa Huang; Professor; Ph.D. (University of California – Los Angeles)

Limin Mao; Research Professor; M.D. (Tongji Medical University)

Darla McCarthy; Associate Teaching Professor; Ph.D. (University of Colorado – Boulder)

Willard Morrow; Associate Teaching Professor; V.M.D. (University of Philadelphia), Ph.D. (University of Kansas)

Paula Nichols; Associate Dean for Research, Professor; Ph.D. (Medical Research Council, Edinburgh, Scotland)

Christopher Papasian; Chair, Department of Basic Medical Science and Professor; Ph.D. (State University of New York)

Bart Patenaude; Associate Teaching Professor; Ph.D. (University of Louisville)

Nilofer Qureshi; Professor; Ph.D. (University of Wisconsin)

Neerupma Silswal; Associate Research Professor; Ph.D.

Chad Touchberry; Assistant Teaching Professor; Ph.D. (University of Kansas)

Michael Wacker; Assistant Dean, Medical Student Research and Associate Teaching Professor; Ph.D. (University of Kansas)

**Biomedical/Health Informatics**

Jenifer Allsworth; Associate Teaching Professor; Ph.D. (Brown University)

Jannette Berkley Patton; Associate Professor; Ph.D. (University of Kansas)

An-Li Cheng; Assistant Professor; Ph.D. (University of Georgia)

Betty Drees; Professor; M.D. (University of Kansas School of Medicine)

Mary Gerkovich; Associate Research Professor; Ph.D. (University of Kansas)
Timothy Hickman; Associate Teaching Professor; B.A./M.D. (University of Missouri – Kansas City)

Kim Smoleren; Assistant Professor; Ph.D. (Tilburg University, Tilburg Netherlands)

Lakshmi Venkitachalam; Assistant Professor; Ph.D. (University of Pittsburgh)

**Community and Family Medicine**

Michael O’Dell; Chair, Department of Community and Family Medicine and Professor; M.D., M.S.H.A. (University of Kansas, School of Medicine)

**Human Therapeutics**

Julie Banderas; Assistant Dean of Graduate Studies & Allied Health; Chair, of Graduate Studies Council: interim Chair, Biomedical/Health Informatics and Professor; B.A., Pharm.D., (University of Nebraska)

Nicholas Norgard; Associate Teaching Professor; Ph.D.

**Internal Medicine**

Daniel Pauly; Professor; M.D. (Baylor College of Medicine), Ph.D. (University of Alabama),

Rebecca R Pauly; Associate Dean, Faculty Development; Chair, Council of Docents; Professor; B.A. (Vanderbilt University); M.D. (University of Alabama)

Abdulaheem Qasem; Assistant Professor; M.D. (Jordan University of Science & Technology School of Medicine)

John Spertus; Professor; Daniel Lauer, M.D. Endowed Chair in Metabolism and Vascular Disease Research; M.D. (University of California)

**OB/Gyn**

Dev Maulik; Senior Associate Dean For Women’s Health; Chair, Department of Obstetrics and Gynecology and Professor; M.D. (University of Calcutta); Ph.D. (University of London)

Gary Sutkin; Associate Dean For Women’s Health; Program Director, Department of Obstetrics and Gynecology: Professor; M.D. (Northwestern University); M.B.A. (J.L. Kellogg Graduate School of Management)

**Ophthalmology**

Raymond Duncan; Assistant Research Professor; Ph.D. (University of North Texas Health Sciences Center)

Peter Koulen; Professor; Felix and Carmen Sabates Endowed Chair in Vision Research; Ph.D. (Johannes Gutenberg University)

**Oral Surgery**

Brett Ferguson; Chair, Chair, Department of Oral and Maxillofacial Surgery and Assistant Professor; D.D.S. (University of Missouri – Kansas City)

**Orthopaedics**

Mark Bernhardt; Chair, Chair, Department of Orthopaedic Surgery and Professor; M.D. (University of Kansas)

**Pathology**

Kamani Lankachandra; Chair, Department of Pathology and Associate Professor; M.B.B.S. (University of Peradeniya)

**Pediatrics**

Shui Qing Ye; Professor; M.D. (Wuhan University School of Medicine), Ph.D. (University of Chicago School of Medicine)

**Psychiatry**

Nash Boutros; Chair, Psychiatry; M.D. (Cairo University Medical School)

Seung Suk Kang; Assistant Professor; Ph.D. (University of Minnesota)

**Graduate**

**Graduate Degree Programs:**

**Masters of Science Degrees:**

Master of Science in Anesthesia
Master of Science in Bioinformatics (http://catalog.umkc.edu/colleges-schools/medicine/graduate-programs/master-of-science-program-bioinformatics)
Master of Medical Science Physician Assistant (http://catalog.umkc.edu/colleges-schools/medicine/graduate-programs/master-of-medical-science-physician-assistant)
Master of Health Professions Education (http://catalog.umkc.edu/colleges-schools/medicine/graduate-programs/master-of-health-professions-education)

**Graduate Certificate Degrees:**

Graduate Certificate in Clinical Research
Graduate Certificate in Health Professions Education (http://catalog.umkc.edu/colleges-schools/medicine/graduate-programs/graduate-certificate-health-professions-education)
Graduate Certificate in Pediatric and Congenital Cardiovascular Perfusion (http://catalog.umkc.edu/colleges-schools/medicine/graduate-programs/graduate-certificate-pediatric-and-congenital-cardiovascular-perfusion)

**Doctor of Philosophy:**

Interdisciplinary Ph.D. primary and co-discipline: Biomedical and Health Informatics (http://catalog.umkc.edu/colleges-schools/medicine/graduate-programs/doctor-of-philosophy)

**Medical**

**Medical Degree Programs:**

**Baccalaureate/M.D, Program** (http://catalog.umkc.edu/colleges-schools/medicine/medical-degree-programs/six-year-program-description)
**M.D. Program** (http://catalog.umkc.edu/colleges-schools/medicine/medical-degree-programs/md-program)

For additional information about the above Medical Degree programs, please visit the website (http://www.med.umkc.edu/prospective) or contact:

UMKC School of Medicine
Council on Selection
2411 Holmes Street
Kansas City, MO 64108
(816) 235-1870
medicine@umkc.edu

**Anesthesia Courses**

**ANESTH 5505 Anatomy for Anesthesiologist Assistants I** Credit: 1
Provides a specialized introduction to clinical human anatomy for students seeking a Masters of Science in Anesthesia. Provides basic science foundation that will be applied during clinical training and practice. Clinical aspects and applications of anatomy are included.

**Prerequisites:** Acceptance to the MSA program.

**ANESTH 5506 Anatomy for Anesthesiologist Assistants II** Credit: 1
Students will master applied anatomy concepts through integration of knowledge and skills taken from medical anatomy lectures and simulation experiences. Students will learn medical physics principles of contemporary equipment and technology used in anesthesia patient care. Through simulation experiences and practice, students will become competent to operate equipment, explain appropriate uses, and interpret results for diagnosis and management of anesthesia patients.

**Prerequisites:** acceptance to master of science in anesthesia program.

**ANESTH 5518 Professionalism for the Anesthesiologist Asst I** Credits: 0.5
Introduction to legal and ethical areas of Anesthesiologist Assistant practice; professional behavior, legal obligations of anesthetists and patient, and social and community contexts of health care.

**Prerequisites:** Acceptance to M.S. Anesthesia program.

**ANESTH 5528 Professionalism for the Anesthesiologist Asst II** Credits: 0.5
Special topics in Anesthesiologist Assistant practice; impact of substance abuse, cognitive deficiency and mental illness in creating an impaired provider.

**Prerequisites:** acceptance into MSA program.
ANESTH 5538 Professionalism for the Anesthesiologist Asst III Credits: 0.5
Special topics in Anesthesiologist Assistant practice; principles of evidence based medicine and approaches to mastering life long learning and maintaining professional competencies.
Prerequisites: acceptance into MSA program.

ANESTH 5540 Patient Monitoring and Instrumentation Credits: 3
Students are taught the clinical application of anesthesia instrumentation. Monitors and devices used in the operating room are studied with respect to principles of operation, calibration, and interpretation of clinical data. A hands-on laboratory is utilized to maximize direct contact to the instruments.

ANESTH 5541 Methods of Anesthesia I Credits: 2
Addresses intraoperative monitoring for complicated patients and complex surgical procedures. Advanced and supplemental monitors and devices used in the operating room are studied with respect to principles of operation, calibration and interpretation of data.
Prerequisites: ANESTH 5540.

ANESTH 5548 Anesthesiologist Assistant Senior Seminar Credits: 0.5
This is 0.5 credit hour course taken in the final semester of the Master of Science in Anesthesia Program. This course is designed to prepare the student for the job market and placement. The course will contain information on student loan payback, financial literacy after graduation, and leadership opportunities for the graduate. The course will also clinically update the students in basic life saving for the healthcare provider (BLS), advanced cardiac life saving (ACLS) and Pediatric advance life saving (PALS).

ANESTH 5556 Physiology for Anesthesiologist Assistants I Credits: 3
Basic and applied human systems physiology with emphasis on topics and areas of special concern to the anesthetist.

ANESTH 5557 Physiology for Anesthesiologist Assistants II Credits: 2
Applied Physiology for Anesthesiologist Assistants II. Continuation of ANESTH 5556.
Prerequisites: ANESTH 5556.

ANESTH 5558 Anesthesia & Co-existing Disease I Credits: 2
The essential link from basic anatomy and physiology to anesthesia care.
Prerequisites: ANESTH 5556.

ANESTH 5559 Anesthesia & Co-existing Disease II Credits: 2
The essential link from basic anatomy and physiology to anesthesia care.
Prerequisites: ANESTH 5558.

ANESTH 5560 Introduction to Anesthesia Credits: 2
Introduction to basic concepts dealing with clinical anesthesia. Medical terminology, human anatomy, medical chart interpretation and drug dosage calculations.

ANESTH 5561 Orientation to Simulation and Clinical Application Credits: 5
A skills lab based course to prepare students for anesthesia patient care in the operating room. Classroom, simulation laboratory and actual operating room environments will be used to teach preoperative assessment, IV placement techniques, airway management, intraoperative patient care and post-operative management. BLS (Basic Life Support) certification is a course requirement.

ANESTH 5562 Anesthesia Clinical Correlation I Credit: 1
A series of conferences presented by faculty and students that applies to anesthetic theory as it relates to the clinical experience. Specific anesthetic situations are emphasized.
Prerequisites: ANESTH 5560.

ANESTH 5563 Anesthesia Clinical Experience I Credits: 4
A continuation of the preparation, observation and hands-on learning format initiated in ANESTH 5561. Patient management and technical skills are refined with close attention to the didactic course work. A comprehensive clinical examination is administered at the end of the semester. ACLS (Advanced Cardiac Life Support) certification is required for course completion.
Prerequisites: ANESTH 5561.

ANESTH 5564 Anesthesia Clinical Correlation II Credit: 1
This is one of 3 courses that complement the clinical experience rotations. Assignments are designed to prepare students to successfully pass the NCCAA certification examination. Course content mirrors a portion of the certifying exam blueprint. Students will develop skills in practicing evidence based medicine and life-long learning.
Prerequisites: ANESTH 5562.

ANESTH 5565 Anesthesia Clinical Experience II Credits: 8
ANESTH 5565 Anesthesia Clinical Experience II (2)- An continuation of ANESTH 5563. A comprehensive examination is administered at the end of the semester. PALS (Pediatric Advanced Life Support) certification is required for course completion.
Prerequisites: ANESTH 5563.
ANESTH 5567 Anesthesia Clinical Experience III Credits: 16
Continued exposure to anesthesiologist assistant clinical practice including clinical subspecialties of anesthesiology (obstetrics, pediatrics, neurosurgery, cardiothoracic, and others). Students rotate at several different hospital sites.
Prerequisites: ANESTH 5565, ACLS and PALS certification.

ANESTH 5568 Anesthesia Clinical Correlation III Credit: 1
This is one of 3 courses that complement the clinical experience rotations. Assignments are designed to prepare students to successfully pass the NCCAA certification examination. Course content mirrors a portion of the certifying exam blueprint. Students will develop skills in practicing evidence based medicine and life-long learning.
Prerequisites: ANESTH 5564.

ANESTH 5569 Anesthesia Clinical Experience IV Credits: 12
Clinical clerkship course where students are in the operating room (OR) five days per week and receive extended exposure to many clinical subspecialties. Students are expected to perform basic clinical competencies with minimal to no assistance from clinical instructors, while attempting advanced competencies with frequent assistance.
Prerequisites: ANESTH 5567.

ANESTH 5570 Anesthesia Clinical Correlation IV Credit: 1
This is one of 3 courses that complement the clinical experience rotations. Assignments are designed to prepare students to successfully pass the NCCAA certification examination. Course content mirrors a portion of the certifying exam blueprint. Students will develop skills in practicing evidence based medicine and life-long learning.
Prerequisites: ANESTH 5568.

ANESTH 5571 Anesthesia Clinical Experience V Credits: 16
Clinical clerkship course where students are in the operating room (OR) five days per week and receive extended exposure to many clinical subspecialties. Students are expected to perform basic clinical competencies with minimal to no assistance from clinical instructors, while attempting advanced competencies with frequent assistance.
Prerequisites: ANESTH 5569.

ANESTH 5573 Anesthesia Clinical Experience VI Credits: 16
Clinical clerkship course where students are in the operating room (OR) five days per week and receive extended exposure to many clinical subspecialties. Students are expected to perform basic clinical competencies with minimal to no assistance from clinical instructors, while attempting advanced competencies with frequent assistance.
Prerequisites: ANESTH 5571.

ANESTH 5575 Pharmacology for Anesthesiologist Assistants I Credits: 2
Basic concepts in pharmacology: principles of drug action, receptor theory, pharmacokinetics, pharmacodynamics and drug dose calculations. The course will emphasize the primary medications used to provide anesthesia and to support patients during the perioperative period.

ANESTH 5576 Pharmacology for Anesthesiologist Assistants II Credits: 2
Pharmacology for Anesthesiologist Assistants (2)- Principles of drug action, receptor theory, pharmacodynamics, and pharmacokinetics are taught. The course emphasizes those medication classes most commonly encountered within the practice of an anesthesiologist assistant. Special attention is given to anesthetic agents and adjunctive therapies.

ANESTH 5577 Methods of Anesthesia II Credits: 3
Continuation of ANESTH 5541, addresses advanced intraoperative monitoring for complex patients and surgical procedures. Advanced supplemental monitors and devices used in the operating room are studied with respect to principles of operation, calibration, and interpretation of data.
Prerequisites: ANESTH 5541.

ANESTH 5585 Physiological Model-based Simulation I Credits: 2
Physiological Model-based Simulation I- Introduction to physiological model-based simulation and procedure simulation with an emphasis on improving appropriate anesthesia-associated basic science knowledge, and manual skills in anesthesia machine checkout, anesthesia materials and equipment set up and performing anesthesia for uncomplicated surgical cases.

ANESTH 5586 Physiological Model-based Simulation II Credits: 2
Physiological Model-based Simulation II - An extension of ANESTH 5585 with an emphasis on improving or exercising knowledge of anesthesia-appropriate basic science and the use of more advanced equipment and techniques for uncomplicated cases with an introduction to crisis management.
Prerequisites: ANESTH 5585.

ANESTH 5590 Special Topic Credits: 0.5-3
An opportunity to explore new topics or existing topics in greater detail and are not included in the usual course offerings.
ANESTH 5601 Principles in Pediatric & Congenital Cardiovascular Perfusion I Credits: 3  
Students will be introduced to fundamentals of congenital heart disease genesis, pediatric and congenital cardiovascular surgery, perfusion and cardiology. The course will delve into developmental cardiac embryology, the genetics congenital cardiac defects, types of congenital heart defects, diagnostic techniques, surgical considerations, and cardiopulmonary bypass methods and techniques. Faculty permission required for enrollment and limited to certified and new graduate perfusionists.  
Prerequisites: Faculty permission required for enrollment and limited to certified and new graduate perfusionists.

ANESTH 5602 Principles in Pediatric & Congenital Cardiovascular Perfusion II Credits: 3  
This course examines advanced topics in pediatric and congenital cardiovascular surgery, perfusion and cardiology. Emphasis on physiology, mechanical assist, transplantation, fetal delivery and interventions will be discussed.  
Prerequisites: Faculty permission required for enrollment and limited to certified and new graduate perfusionists.

Basic Medical Science Courses
BMS 5590 Special Topics Credits: 1-3  
An opportunity to explore new topics or existing topics in modified or greater detail; topics which are not included in the usual course offerings.

BMS 9265 Human Biochemistry 1 - Medical Credits: 5  
Presents basic principles of human biochemistry. Addresses structure, function, biosynthesis, degradation and utilization of the major constituents of living systems. Employs an integrative approach to the basic science and clinical medicine aspects of normal and defective metabolism.

BMS 9296 Human Structure Function I Credits: 7  
Part 1 of a 4 part series (January-February). Integrated course in anatomy, histology, embryology, physiology and biochemistry. This unit covers introductory principles and the musculoskeletal system.

BMS 9297 Human Structure Function II Credits: 6  
Part 2 of a 4 part series (February-April). Integrated course in anatomy, histology, embryology, physiology and biochemistry. This unit covers cardiopulmonary and gastrointestinal systems.

BMS 9298 Human Structure Function III Credits: 5  
Part 3 of a 4 part series (April-May). Integrated course in anatomy, histology, embryology, physiology and biochemistry. This unit covers urinary and reproductive systems.

BMS 9300 Human Gross Anatomy I Credits: 5  
Regional study of the anatomy of the chest, abdomen and pelvis. A systematic and regional study of the anatomy of the maxillofacial and anterior neck structures with emphasis on the biomedical applications of the anatomy studies.

BMS 9301 Human Gross Anatomy II Credits: 5  
A continuation of BMS 9300.

BMS 9308 Histology Credits: 2.5  
A motivative microanatomic study of the normal morphology of cells, tissues, organs and organ systems to stimulate the learning of terminology and basic cellular structure of the human body.

BMS 9310 Medical Neurosciences Credits: 9  
Lecture-based course covering major neurological disorders and disease states. Specific neurologic diseases will be correlated to the didactic sessions by clinicians. Laboratory component is oriented around brain dissection sessions. Laboratory experience will demonstrate gross lesions and integrate the lesions with the clinical symptoms. A variety of supplemental audiovisual material also supports the class.  
Prerequisites: Successful completion of HSF III and enrollment in HSF IV.

BMS 9311 Medical Microbiology Credits: 5  
Covers basic scientific principles of virology, bacterial physiology and genetics. Presents information relevant to the pathogenesis of human infections caused by viruses, bacteria, fungi, protozoa and helminthes. Provides a concise presentation of basic immunological principles and their clinical relevance. Provides a concise review of antimicrobial therapeutic regimens including mechanism of action and clinical settings in which specific agents might be used. Utilizes case presentations to illustrate the manner in which reasonable differential diagnoses are developed and a rational approach toward empiric antimicrobial usage.

BMS 9399 Human Structure Function IV Credits: 4  
Part 4 of a 4 part series (June-July). Integrated course in anatomy, histology, embryology, physiology and biochemistry. This unit covers the head and neck system. Includes a comprehensive examination for the Human Structure Function Series I-IV.

BMS 9701 Clinical Anatomy of Head and Neck Credits: 2-4  
A detailed dissection of the maxillofacial and anterior neck regions, with the emphasis being placed on the clinical application of the surgical procedures used in these areas. This course may not be used to satisfy Cell Biology and Biophysics or Molecular Biology and Biochemistry discipline-specific requirements for the Interdisciplinary Ph.D. program.
Health Professions Education Courses

HPRE 5500 Leadership and Administration in Health Professions Education Credits: 3
Current approaches to academic leadership within the context of health professions education. Topics include management skills, problem solving, communication, group skills, motivation, managing conflict, and delegating. Attention to developing skill in presenting, interviewing and in facilitating meetings. Focus on application within the context of health professions education.

HPRE 5508 Principles and Methods of Research Credits: 3
Investigate the role and importance of quantitative, qualitative and mixed-methods research in the health professions. Primary goals are to develop the knowledge and skills to read and interpret educational research in the health professions and to develop a plan to conduct research projects.

HPRE 5522 Curriculum Design in Health Professions Education Credits: 3
Examination of the theory and strategies for the development, implementation, and evaluation of of curricula in health professions education. Focus on contextual factors, learner needs, current models, outcome-based approaches, leadership, and faculty development for design and delivery.

HPRE 5530 Current Issues in Health Professions Education Credits: 3
Consideration of the major social, historical, educational, professional, and cultural issues that affect health professions education today. Focus on investigation of various topics as linked to learning and teaching in the health professions. This course will provide the foundations for the Certificate in Health Professions Curriculum and Evaluation.

HPRE 5535 Community Engagement in Education Credits: 3
Provides a foundation grounded in examination of the forces and factors that shape successful community engagement projects associated with measurable outcomes. Students will apply education concepts in developing a project with community partners to identify needs and implement a health improvement project.

HPRE 5540 Independent Study Credits: 1-3
Focused readings and/or special research project in an area selected by the graduate student in consultation with the advisor.

HPRE 5550 Assessment in Health Professions Education Credits: 3
Focus on the design, implementation and evaluation of tools for assessing student learning and performance in health professions education. Consideration of validity, reliability, writing test items, survey design, checklists, observational assessment, simulations and rubrics. Emphasis on best practices, assessment challenges, and on the effective implementation of comprehensive assessment programs in health professions education.

HPRE 5560 Teaching in Health Professions Education Credits: 3
Emphasis on learning and teaching theories and current research in health professions education as applied to instructional methods, delivery, learning contexts. Focus on individual differences, mentoring and tutoring, and on teaching in clinical, small group and large group situations.

HPRE 5566 Teaching about Culture and Health Credits: 3
The course begins with a foundation in cultural competency for health profession educators including content about social determinants of health, health disparities and culturally appropriate care. Curriculum development and instructional design topics including small group facilitation, active learning, case-based learning, use of narrative and media, distance learning, debriefing and assessment are specifically tailored for teaching cultural competency in health professions education.

Prerequisites: HPRE 5560, HPRE 5522, HPRE 5550

HPRE 5580 Program Evaluation in Health Professions Education Credits: 3
Applied research as linked to program development and evaluation in health professions education. Topics include needs assessment, summative and formative evaluations, evaluation paradigms, methodologies, data collection, data analysis, reporting findings. This course is project-based.

Prerequisites: EDUC-R&P 5508.

HPRE 5588 Learning Portfolio in Health Professions Education Credits: 1-3
Learning Portfolio in Health Professions Education (HPRE) is an individualized course which provides the opportunity to document and reflect on academic and applied work related to the learning outcomes of the Master of Health Professions Education program. Students engage in a process of selection, documentation, reflection, and collaboration with the goal of developing deeper understandings regarding their educational development, accomplishments, and application. The course may be taken for 1-3 credit hours per semester, although the full three credit sequence is required.

Prerequisites: Enrollment in the Master's in Health Professions Education program.

HPRE 5599 Summer Conference in Health Professions Education Credits: 3
The Summer Conference in Health Professions Education provides an opportunity for second year students in the Masters in Health Professions Education program to design, deliver and assess a one day, “mini” conference for area health professions educators. Students will work collaboratively, under faculty guidance, to design objectives, organize resources, develop timelines, publicize, deliver and evaluate a conference designed to reflect a particular theme in health professions education. The conference will consist of educational research presentations, hands-on, skill-based workshops, consultations, and literature/resource dissemination. It will serve to showcase student accomplishments and skills and be open to the public.

HPRE 5899 Required Graduate Enrollment Credit: 1
Required enrollment for students who will graduate during a term when they are not enrolled in a course. Option for students who will complete assignments in order to be eligible for graduation.
Medical Bioinformatics Courses

MEDB 5501 Biostatistics I Credits: 3
Introduction to statistical concepts and analytic methods as applied to health science. Course includes lectures and hands on computer laboratory.  
**Prerequisites:** an advanced math course (i.e., Calculus, statistics).

MEDB 5502 Biostatistics II Credits: 3
The second course in the Biostatistics sequence for Master of Science in Bioinformatics; students gain knowledge and experience with advanced biostatistical methods.  
**Prerequisites:** MEDB 5501.

MEDB 5503 Mixed-Effects Models Credits: 3
This course will cover the computational basis of mixed-effects models and how to apply these models to analyze data. Students will learn how to graph, investigate, and model data that are not independent and identically distributed, and how to evaluate model fit.  
**Prerequisites:** completed courses: MEDB 5505 R-Introduction, MEDB 5501 Biostatistics I, MEDB 5502 Biostatistics II, or equivalents and Linear Algebra is preferred.

MEDB 5505 Introduction to R Credit: 1
Provides a working familiarity with R. No advanced programming or statistical analytic skills, other than the ability to create and modify text files are needed. Basic methods for data import, data management, simple graphics, and basic statistical analysis are introduced. Provides student with a firm foundation to address these areas in advanced statistics classes or in the student's research efforts, including thesis/dissertation research. A basic understanding of statistical terminology and a working familiarity with computer-based data files (e.g., Excel) is necessary. A basic understanding of the concepts of computer coding is recommended.

MEDB 5506 Introduction to SPSS Credit: 1
Session provides a working familiarity with SPSS. Students are not expected to have advanced programming or statistical analysis skills, other than the ability to create and modify text files. Basic methods for data import, data management, simple graphics, and basic statistical analysis are introduced. This class will not cover advanced statistical methods, but will provide the student with a firm foundation to address these areas in advanced statistics classes or in the student's research efforts, including thesis/dissertation research. A basic understanding of statistical terminology and a working familiarity with computer-based data files (e.g., Excel) is necessary.

MEDB 5507 Introduction to SAS Credit: 1
Session provides a working familiarity with SAS. Students are not expected to have advanced programming or statistical analysis skills, other than the ability to create and modify text files. Basic methods for data import, data management, simple graphics, and basic statistical analysis are introduced. This class will not cover advanced statistical methods, but will provide the student with a firm foundation to address these areas in advanced statistics classes or in the student's research efforts, including thesis/dissertation research. A basic understanding of statistical terminology and a working familiarity with computer-based data files (e.g., Excel) is necessary.

MEDB 5510 Clinical Research Methodology Credits: 3
This course trains the student to contribute to research design, planning, and implementation, and to manage and interpret health-related data. This course will provide a broad overview of clinical research in terms of definition, methodology, conduct and applications. The course will explore basic elements of clinical research including the hierarchy of clinical research design and the conduct of clinical research. Application of clinical research knowledge to specific medical practice issues will also be explored. Course topics include: conceiving the research question; study designs; questionnaire construction; research methodology; research ethics; human subjects requirements; the role of statistical analysis in clinical research; research proposal preparation; and research based on analysis of secondary data. Both classroom and online asynchronous sections offered.

MEDB 5511 Principles and Applications of Epidemiology Credits: 3
This course will provide an introductory overview of the principles of epidemiology and illustrate applications in specialized topic areas. Course lectures will introduce measures of effect used to study disease in human populations, epidemiological study designs, concepts of causal inference, and threats to study validity. Specialized lectures will demonstrate the application of these concepts in select health and disease conditions.

MEDB 5512 Clinical Trials Credits: 3
Clinical Trials explores the knowledge and skills required to conduct clinical trials, and implications of clinical trials on practice in medicine and allied health.

MEDB 5513 Overview of Health Services Research Credits: 3
Provides an overview of the U.S. health care and public health systems including issues about cost, access, and quality of health care. This course focuses on the role of research and information in the process of redesigning of health care delivery in the U.S. for the purpose of improving the value of health services.  
**Prerequisites:** Completion of MEDB 5501 Biostatistics I and completion of MEDB 5510 Clinical Research Methodology or MEDB 5511 Principles and Applications of Epidemiology.
MEDB 5514 Human Genome Epidemiology Credits: 3
Designed for biological researchers and clinicians interested in studying common human diseases using state of the art genomics/genetics epidemiological approaches. Comprehensive introduction to concepts and methodologies of quantitative/statistical genetics, emerging technologies and analytical methods for genomic science, basic study design, utilization of software packages for analyses of genomic data, successful examples of using human genome epidemiology information to improve health, and ethical, legal and social issues in the design and conduct human genome epidemiology research.

MEDB 5520 Intro-Medical Informatics Credits: 3
Introduction to concepts of medical informatics and overview of the use of computers and information technologies in health care.

MEDB 5521 Clinical Bioinformatics Credits: 3
Clinical bioinformatics will provide the foundation required for effective communication between computational, biological and clinical experts. This class uses a series of exercises to enable participants to independently perform gene and protein-based bioinformatics queries and analyses. Throughout the course, core biological principles are explained, as are the foundational technology and computational topics. Students will become proficient with public bioinformatics resources. This course will prepare students to apply the techniques to their research or participation in interdisciplinary clinical terms.

MEDB 5525 Social Determinants of Health Credits: 3
This course will describe how social, economic and political factors affect health. It will examine strategies to address social determinants of health to reduce health inequities. Students will explore how specific social determinants like socioeconomic status, race ethnicity, and lifestyle influence health, use a "life course" approach to look at different stages of life and the effect of social determinants on specific populations.

MEDB 5530 Independent Study I Credits: 1-3
Focused readings and/or special research project in an area selected by the graduate student in consultation with the advisor.

MEDB 5531 Independent Study II Credits: 1-3
Focused readings and/or special research projects in an area selected by the graduate student in consultation with the advisor.

MEDB 5535 Quantitative Aspects of Epidemiologic Research Credits: 3
This course offers students advanced training in the analysis of epidemiological data. Topics include application of common measures of frequency and association, confounding, effect modification, bias, misclassification, and sensitivity analysis in epidemiologic and clinical data sources. **Prerequisites:** MEDB 5501, MEDB 5502 and one of the following: MEDB 5510 or MEDB 5511

MEDB 5540 Multidisciplinary Graduate Seminar Credit: 1
This course will be a combination of discussion, presentations, and didactic presentations that will allow students and faculty to exchange information and explore current research across the disciplines that make up the bioinformatics degree program. The course is designed to help student develop critical skills for evaluating published research, designing research projects, and communicating research findings.

MEDB 5550 Health Outcomes Seminar Credit: 1
The course content is guided by a series of seminars presented by researchers who are actively engaged in health outcomes studies. It explores multiple topics that are unique relevant to clinical investigators. Faculty and peer discussion forums highlight key concepts and applications.

MEDB 5560 Medical Decision Making Credits: 3
This course will introduce the concept of medical decision making under uncertainty through an examination of disease probabilities and how they are altered by the characteristics of the diagnostic test being studies or used clinically. Decision trees will be introduced as a mechanism for communicating complex medical decisions and introductory level decision analysis will be presented. The measurement of patient values for alternative outcomes will be introduced as they pertain to direct payoff values as well as modifiers to cost payoffs.

MEDB 5561 Responsible Conduct of Research Credits: 3
An interdisciplinary course which covers principles and day-to-day practicalities of research ethics, information about regulatory requirements for conducting research including safety issues and the use of humans, animals and radioactive biohazardous materials; discuss current issues in the ethical aspects of research, such as scientists' obligations with respect to public policy and advocacy.

MEDB 5589 Special Topics Credits: 1-3
An opportunity to explore in depth topics not included in usual course offerings. One or more topics will be announced in advance of registration.

MEDB 5591 Internship I Credits: 1-3
Opportunity to apply knowledge and skills in clinical, computational, or genomics research and gain insight into potential career options. Students develop appreciation for teamwork and commitment in professional environments. **Prerequisites:** MEDB 5501, MEDB 5502, MEDB 5510, MEDB 5513.

MEDB 5592 Internship II Credits: 1-3
Opportunity to apply knowledge and skills in clinical, computational, or genomics research and gain insight into potential career options. Students develop appreciation for teamwork and commitment in professional environments. Internship II is applicable to students who have previously completed 3 hours of internship. **Prerequisites:** MEDB 5501, MEDB 5502, MEDB 5510, MEDB 5513, MEDB 5591.
Prerequisites:

workshops, with standardized patients, and linked to their experiences in the Continuing Care Clinic clerkship. Students will practice communication and interpersonal skills in small groups and also have the opportunity to practice examination skills in making. Students will practice complaint-based histories and a review of systems to prepare them for their Year 3 Continuing Care Clinic Clerkship and clinical decision-making. Communication, relationship-building and patient centered interviewing skills. Provides self-awareness and personal growth strategies that facilitate the acquisition of professional behavior affecting honesty and integrity, compassion and altruism, as well as the management of stress. Explores non-biological factors influencing health and the appreciation of different value systems and life styles. Promotes ethical considerations relating to professional behavior and student conduct as a forerunner to professional behavior. Emphasizes the team approach in solving medical problems through direct small group activities as part of weekly onsite docent experiences. Integrates patient interviews and examinations with sciences fundamental to clinical medicine.

MEDICINE 9100 Fundamentals of Medical Practice I Credits: 5
Introduces students to professional values, attitudes and skills required to practice medicine competently. Develops student competence in basic communication, relationship-building and patient centered interviewing skills. Provides self-awareness and personal growth strategies that facilitate the acquisition of professional behavior affecting honesty and integrity, compassion and altruism, as well as the management of stress. Explores non-biological factors influencing health and the appreciation of different value systems and life styles. Promotes ethical considerations relating to professional behavior and student conduct as a forerunner to professional behavior. Emphasizes the team approach in solving medical problems through direct small group activities as part of weekly onsite docent experiences. Integrates patient interviews and examinations with sciences fundamental to clinical medicine.

MEDICINE 9110 Medical Terminology Credit: 1
1 credit hour/twice weekly each semester. Methodical introduction to the language of medicine and its usage in modern clinical documentation. Introduces word elements in a logical, graduated sequence correlated with laboratory practice. Encourages skills in etymological analysis based on the word elements presented to facilitate interpretation of composite medical terms.

MEDICINE 9119 Learning Basic Medical Sciences Credit: 1
1 credit hour/1 hour per week. Provides students with an understanding of their own learning processes and those study strategies that promote maximum learning efficiency. Active participation in course increases achievement in both science and non-science courses, smooths transition to college-level work, and further develops reasoning and thinking skills that apply to medical school.

MEDICINE 9210 Fundamentals of Medical Practice II Credits: 5
Introduces students to professional values, attitudes and skills required to practice medicine competently. Develops student competence in basic communication, relationship-building and patient centered interviewing skills. Provides self-awareness and personal growth strategies that facilitate the acquisition of professional behavior affecting honesty and integrity, compassion and altruism, as well as the management of stress. Explores non-biological factors influencing health and the appreciation of different value systems and life styles. Promotes ethical considerations relating to professional behavior and student conduct as a forerunner to professional behavior. Emphasizes the team approach in solving medical problems through direct small group activities as part of weekly onsite docent experiences. Integrates patient interviews and examinations with sciences fundamental to clinical medicine.

MEDICINE 9210 Fundamentals Of Medical Practice III Credits: 5
5 credit hours, 3 hours per week onsite, 2 hours lecture. Reinforces important concepts in diversity and professionalism. Continues the team approach in solving medical problems through direct small group activities as part of weekly onsite docent experience.

MEDICINE 9220 Fundamentals Of Medical Practice IV Credits: 5
5 credit hours, 3 hours per week onsite, 2 hours lecture. Reinforces important concepts in diversity and professionalism. Continues the team approach in solving medical problems through direct small group activities as part of weekly onsite docent experiences. Integrates patient interviews and examinations with sciences fundamental to clinical medicine, including biochemistry, anatomy, physiology, biochemistry and social sciences. Exposes students to a series of interviews with seasoned professionals who address issues of professionalism and career development.

MEDICINE 9221 Hospital Team Experience Credit: 1
1 credit hour/2-week assignment in hospital. Teaches students to make good observations, interact appropriately with patients, family, and hospital staff, assist with non-physician duties, and perform technical skills appropriate to assigned departments. Facilitates understanding of allied health care personnel roles in patient care, communication among health care professionals and its influence on the delivery of health care and patient outcomes, and the hospital process and structure of authority within the hospital.

MEDICINE 9308 Clinical Practice of Medicine I Credits: 3
Basic communication/clinical examination skills will be taught in the classroom with skills workshops. Students will learn to enhance their communication skills with patients and their families aligned with a systems-based approach to the physical examination. Students will also begin to practice complaint-based histories and a review of systems to prepare them for their Year 3 Continuing Care Clinic Clerkship and clinical decision-making. Students will practice communication and interpersonal skills in small groups and also have the opportunity to practice examination skills in workshops, with standardized patients, and linked to their experiences in the Continuing Care Clinic clerkship.

Prerequisites: Successful completion of HSF III, and enrollment in HSF IV.
MEDICINE 9309 Clinical Practice of Medicine II Credits: 5
Advanced communication/physical examination skills will be taught in the classroom with communication skills workshops. Students will learn/ practice skills to communicate/examine patients aligned with a systems-based pathophysiology approach. Students will learn/practice a complaint- based HP exam by system aligned to their objectives in the Pathology II: Pathophysiology course. Students will learn/develop skills in clinical diagnosis and decision-making by system that includes instruction/practice on more advanced physical examination skills. Students will practice communication and interpersonal skills in small groups and also have the opportunity to practice examination skills in workshops, with standardized patients, and linked to their experiences in the Continuing Care Clinic.
Prerequisites: Successful completion of HSF III, and enrollment in HSF IV.

MEDICINE 9310 History of Medicine Credit: 1
In this course students will learn the ways disease has altered history and that conceptions of disease undergo constant change. Topics covered include diseases and their relationships to other medical sciences, as well as the historical and scientific developments which led to our present understanding of diseases and medicine.

MEDICINE 9312 Pathology I: General Pathology, Genetics, and Immunology Credits: 10
Students will learn and be able to apply basic science education in the clinical practice of medicine. This application includes the areas of gross and microscopic anatomy, biochemistry, genetics, pathophysiology, and immunology. Students will develop a basic understanding of laboratory tests. They will develop competency in clinical diagnosis based on pathologic findings related to anatomic pathology, laboratory medicine and pathophysiology. Course materials will also cover prevention of disease and disability, global health issues, forensic medicine and pathology, age and gender-related issues in pathology and medicine, and appropriate utilization of Pathology and Laboratory Medicine Services.

MEDICINE 9313 Pathology II: Systems-Based Pathology and Pathophysiology Credits: 11
Students will learn and apply basic science education in the clinical practice of medicine through systems-based teaching about disease. This application includes the areas of biochemistry, genetics, pathophysiology, and medical microbiology. Students will expand their understanding of basic laboratory tests with a focus on interpretation and gain familiarity with more complex or specialized laboratory tests, enhancing their abilities in test selection and interpretation. They will also begin to approach a multi-system health problem in terms of its pathogenesis, the mechanisms of systemic interactions, and consequent/subsequent potential complications. Content areas emphasized include cardiovascular, lymphatic, hematologic, gastrointestinal, renal, hepatic, and genitourinary systems.

MEDICINE 9383 Continuing Care Clinic Credits: 5
Provides ambulatory and continuous care experience in general medicine clinics. The docent teams are assigned to a clinic in which students see and follow a panel of patients on a continuous basis for up to four years, where necessary, under the supervision of docents. Provides continuity of care from inpatient hospitalization to outpatient care, allowing longitudinal experience for the student and personalized care for the patients. Allows students to observe the natural progression of disease and experience the rewards and challenges of an ongoing doctor-patient relationship.

MEDICINE 9385 Introduction to Pharmacology Credits: 2
Consists of self-paced, independent learning, computer-based instruction. Introductory principles of pharmacology are covered that provide students with basic knowledge and skills necessary for upcoming didactic and clinical curriculum. Students become familiar with drug information resources, pharmaceutical calculations, and prescription writing skills, and learn basic mechanisms of drug action, preventive therapeutics and pharmacokinetic principles.

MEDICINE 9387 Extended Clinic I Credits: 5
MEDICINE 9390 Clinical Correlations Credits: 5
5 credit hours. Case-based discussions provided by clinicians that serve to reinforce basic science concepts provided during BMS 9296, BMS 9297, and BMS 9298.

MEDICINE 9401 Internal Medicine/Docent Instruction Yr 4 Credits: 5
Students spend this two-month rotation on the medical wards at Truman Medical Center, each working as an integral member of a docent team that includes the docent, residents and attending health care staff. Year 3 and 5, and Year 4 and 6 students are paired together in a junior-senior partnership. Rounds, conference and consultations.

MEDICINE 9408 Pharmacology Credits: 10
Introduces the study of the interaction of drugs with biological systems. Provides the medical student with relevant basic pharmacology of the model drugs under clinical investigation and in use today. Includes extensive small group activities.

MEDICINE 9471 Family Medicine Credits: 5
Exposes students to the unique specialty that focuses on the family. Students experience the act of medicine as well as science, working with patients in the context of their family and community. Includes care of the child, the adolescent, pregnant women, young and middle aged adults, and the elderly. Addresses ambulatory medicine, prevention and health maintenance.

MEDICINE 9472 Behavioral Science in Medicine Credits: 5
Teaches the basic taxonomy, assessment methods and treatment interventions of chemical dependence and major psychiatric disorders. Serves as preparation for the psychiatry rotation. Examines relevant ethical issues commonly faced in current medical practice. Utilizes case studies and a problem-centered approach in addition to clinical experience including home health care visits, supervised interviewing, and time on an inpatient chemical dependency unit. Challenges the student to achieve an integrated theoretical understanding of various approaches in behavioral sciences as a background for meeting patients needs. Teaches communication skills including education of older patients.
MEDICINE 9482 Patient, Physician, Society I Credits: 2
Introduces students to a 7-week unit emphasizing medical decision making. Introduces students to a 6-week unit which focuses on public health. Activities include lecture, problem sets, small group projects.

MEDICINE 9483 Continuing Care Clinic Credits: 5
Provides ambulatory and continuous care experience in general medicine clinics. The docent teams are assigned to a clinic in which students see and follow a panel of patients on a continuous basis for up to four years, where necessary, under the supervision of docents. Provides continuity of care from inpatient hospitalization to outpatient care, allowing longitudinal experience for the student and personalized care for the patients. Allows students to observe the natural progression of disease and experience the rewards and challenges of an ongoing doctor-patient relationship.

MEDICINE 9483RC Year Four Repeat Clinic Credits: 5
Prerequisites: Year 3 clinic.

MEDICINE 9484 Patient, Physician, Society II Credits: 2
Introduces students to a unit emphasizing medical ethics and palliative care. Activities include lecture, small group sessions, and assigned readings.

MEDICINE 9485 Ambulatory Care Pharmacology Credits: 2
Consists of a self-paced, independent learning, computer-based instruction. Focuses on integration of patient-related data with basic science data. Students obtain skills in assessing patient risk or disease staging and selecting appropriate pharmacotherapy based on such information. The selected topics focus on outpatient pharmacotherapy of common disease states for which there are established treatment guidelines, such as hypertension, heart failure, diabetes mellitus, asthma, pain, and hyperlipidemia.

MEDICINE 9487 Extended Clinic II Credits: 5

MEDICINE 9501 Internal Medicine/Docent Instruction Yr 5 Credits: 5
Students spend this two-month rotation on the medical wards at Truman Medical Center, each working as an integral member of a docent team that includes the docent, residents and attending health care staff. Year 3 and 5, Year 4 and 6 students are paired together in the junior-senior partnership. Rounds, conference and consultations.

MEDICINE 9503 Pediatrics Rotation Credits: 10
This two-month rotation is designed to help students master skills necessary in assessing normal and abnormal development and behavioral variation in the newborn, infant and child in the outpatient clinical setting. History-taking and physical examination of infants, children and adolescents are emphasized.

MEDICINE 9503BR Peds Rotation Credits: 5

MEDICINE 9505 General Surgery Rotation Credits: 10
Introduces students to the field of general surgery. Emphasizes the indications, contraindications, types of operative management, and the mortality and morbidity of various operations. Involves the student in several different kinds of learning experiences, such as preoperative and postoperative care, work in the operating room, outpatient clinic visits, night call, student conferences and resident conferences. Covers skills in surgical scrub, putting on gown and gloves, knot tying, vena puncture, proctoscopy, and suturing of the skin. Students assist in performing skills such as insertion of CVP catheters, insertion of a chest tube, thoracentesis, paracentesis and Swan-Ganz catheters.

MEDICINE 9506 Obstetrics-Gynecology Rotation Credits: 10
Provides the student with an opportunity to gain basic competence in obstetrics and gynecology, including proficiency in the history and physical examination related to the obstetric and gynecologic patient. Emphasizes outpatient gynecology, family planning and techniques for early detection of gynecologic cancer. Provides basic information in reproductive physiology and endocrinology, infertility, gynecologic oncology, and the psychologic aspect of diseases of women. Covers concepts of prenatal care and fundamentals of normal labor and delivery, and pregnancy complications.

MEDICINE 9506BR Obset-Gynecol Rotation Credits: 5

MEDICINE 9514 Medicine, War & Bioethics Credits: 5
This course considers the continually evolving relationship between medicine, war, and the arts, from the slaughter of the American Civil War (1861-65) to today's conflicts in Iraq. Our focus is on the extraordinary difficult medical and ethical decisions faced by physicians in times of war, and the ways in which those experiences are reflected in the arts. Topics include the effects of disease on armies, biological warfare, the development of ambulance and hospital services in the Civil War, battlefield medicine, the diagnosis and treatment of shellshock victims in WWI, chemical warfare, the pioneering of plastic surgery, triage techniques in WWII, nuclear warfare, and the personal experiences of physicians in the Vietnam and Iraq wars.

MEDICINE 9515 Medicine and Music Credits: 5
This course will explore ways in which music and medicine interact, including the following topics: therapeutic applications of music (music therapy), current research on how the brain processes music, the treatment of medical themes (including illness and disease, patients, physicians, and human experimentation) in musical works, and how certain composers' medical conditions affected their creative output.

MEDICINE 9515A1 Independent Readings Month Credits: 5
Independent Readings Month
MEDICINE 9516 Medicine and Film Credits: 5
Movies are narratives that record, instruct, motivate, entertain and transform. This course investigates the ways in which physicians, patients, and medical students have been portrayed in Hollywood films over the course of the twentieth and the early twenty-first centuries. Compassion, idealism, and heroism were common traits in early doctor movies but there was also a recurrent theme of the greedy callous doctor who valued research over patient welfare, and profits over ethics. We discuss how films reflected, changed, and molded perceptions of physicians and patients in the past, and examine what contemporary portrayals of the medical profession can tell us about the expectations and fears of patients today.

MEDICINE 9517 Medicine and Literature Credits: 5
The aim of this course is to engage students in the process of self-reflection about their roles as health care professionals through the lens of literature. Reading about the ways in which people interact with professionals, patients, and disease can enrich our understanding of cultural, economic, and social issues. Medical literature is a diverse field and it increases our awareness of the different reactions to medicine and illness. This course is intended to improve our empathy for patients and peers.

MEDICINE 9518 Medicine, Law and Bioethics Credits: 5
This course provides the basic doctrines and principles of the law that form the foundation for legally and ethically sound medical practice. It includes the comprehensive coverage of the history of legal medicine in the United States and the dynamics of law applied to the practice of medicine. Current developments in the U.S. health care delivery and in the field of bioethics are identified along with the impact on practice of medicine. Lecture, discussion, and writing about legal and ethical issues related to the practice of medicine prepares students in Year 5 and Year 6 to assume the legal and ethical responsibilities of the M.D. degree. This course fulfills the requirement for a Medical Humanities course in year 5 or year 6.

MEDICINE 9570 Family Medicine Preceptorship Credits: 5
Provides work experience with a rural Missouri physician. Helps students understand the responsibilities and importance of family physicians in the provision of health care. Provides continuing emphasis on the need for and importance of family practice.

MEDICINE 9571 Psychiatry Rotation Credits: 5
Gives each medical student a clinical assignment that involves responsibility for patient care under supervision on the adult inpatient service and experience in the clinic. Includes seminars in psychopathology, psychiatric syndromes, mechanisms of defense, psychopharmacology, drug and alcohol abuse and specific psychosocial assessment.

MEDICINE 9578 Medicine and Art Credits: 5
Lecture, discussion.

MEDICINE 9583 Continuing Care Clinic Credits: 5
Provides ambulatory and continuous care experience in general medicine clinics. The docent teams are assigned to a clinic in which students see and follow a panel of patients on a continuous basis for up to four years, where necessary, under the supervision of docents. Provides continuity of care from inpatient hospitalization to outpatient care, allowing longitudinal experience for the student and personalized care for the patients. Allows students to observe the natural progression of disease and experience the rewards and challenges of an ongoing doctor-patient relationship.

MEDICINE 9583RC Year Five Repeat Clinic Credits: 5
Monthlong course in which students repeat or complete outstanding requirements of Year 5 Continuing Care Clinic.

MEDICINE 9585 Prescribing for Special Populations Credits: 2
Consists of a self-paced, independent learning, computer-based instruction. Teaches principles of prescribing for special populations. Students learn to recognize special patients and to assess risks and benefits and individualize drug therapy in special patient situations. The course addresses concepts of pharmacology in five commonly-encountered special populations: pediatrics, elderly, patients with liver or kidney disease, and pregnant or breast-feeding patients.

MEDICINE 9587 Extended Clinic III Credits: 5
MEDICINE 9594 Medicine and Body Image Credits: 5
Lecture, discussion, writing about ethical issues related to death.

MEDICINE 9601 Internal Medicine/Docent Instruction Yr 6 Credits: 5
Students spend this two-month rotation on the medical wards at Truman Medical Center, each working as an integral member of a docent team that includes the docent, residents and attending health care staff. Year 3 and 5, and Year 4 and 6 students are paired together in a junior-senior partnership. Rounds, conference and consultations.

MEDICINE 9678 Emergency Medicine Credits: 5
Based at Truman Medical Center Hospital Hill or Saint Luke’s Hospital of Kansas City, the major affiliated adult hospitals for the School of Medicine. Emphasizes principles, concepts and skills necessary for the initial evaluation and care of medical and surgical emergencies. Teaches management of simple lacerations, burns, contusions, sprains, and infections, and recognition of life threatening emergencies and initiation of emergency care in response.

MEDICINE 9683 Continuing Care Clinic Credits: 5
Provides ambulatory and continuous care experience in general medicine clinics. The docent teams are assigned to a clinic in which students see and follow a panel of patients on a continuous basis for up to four years, where necessary, under the supervision of docents. Provides continuity of care from inpatient hospitalization to outpatient care, allowing longitudinal experience for the student and personalized care for the patients. Allows students to observe the natural progression of disease and experience the rewards and challenges of an ongoing doctor-patient relationship.
MEDICINE 9685 Rational and Safe Drug Prescribing Credits: 2
Consists of self-paced, independent learning, computer-based instruction. Teaches principles of clinical pharmacology that will assist the student in responsibly prescribing medications. Students develop skills in making informed clinical decisions through studying topics such as literature evaluation, medication errors, adverse drug reactions, drug allergies, drug interactions, overdose management, alternative therapies, and therapeutic drug monitoring.

MEDICINE 9687 Extended Clinic IV Credits: 5
MEDICINE 9714A2 Academic General Year I Credit: 1
MEDICINE 9715A1 Independent Readings Month Credits: 5
MEDICINE 9716A1 Independent Study Month Credits: 5
MEDICINE 9732 Academic-Biomedical and Health Informatics Credits: 5
MEDICINE 9816C11 Family Practice Sub-Internship Credits: 5
Sub-internship in Family Medicine
MEDICINE 9818-C11 Special Topics - Community and Family Medicine Credits: 5
Special Topics - Community and Family Medicine
MEDICINE 9818-C21 Special Topics - Internal Medicine Credits: 5
Special Topics - Internal Medicine
MEDICINE 9818-C31 Special Topics - Neurology/Psychiatry Credits: 5
Special Topics - Neurology/Psychiatry
MEDICINE 9818-C41 Special Topics-OB/GYN REI SUB-I Credits: 5
Special Topics-OB/GYN REI SUB-I
MEDICINE 9818-C51 Special Topics - Pathology Credits: 5
Special Topics - Pathology
MEDICINE 9818-C61 Special Topics - Pediatrics Credits: 5
Special Topics - Pediatrics
MEDICINE 9818-C71 Special Topics - Radiology Credits: 5
Special Topics - Radiology
MEDICINE 9818-C81 Special Topics - Surgery Credits: 5
Special Topics - Surgery
MEDICINE 9818-C91 Special Topics - Miscellaneous Credits: 5
Special Topics - Miscellaneous
MEDICINE 9818-C92 Special Topics - Miscellaneous Credits: 5
Special Topics - Miscellaneous
MEDICINE 9842-C21 Internal Medicine Sub-Internship Credits: 5
MEDICINE 9850-C31 Neurology Sub-Internship Credits: 5
MEDICINE 9870C41 Obstetrics and Gynecology - Sub-Internship Credits: 5
MEDICINE 9898-C61 Internal Medicine/Pediatrics-Sub-Internship Credits: 5

**Prerequisites:** Successful completion of the core Internal Medicine and Pediatrics clerkships.
MEDICINE 9899-C61 Internal Medicine Pediatrics Clinic Credits: 5
MEDICINE 9921-C61 Pediatrics Sub-Internship Credits: 5
MEDICINE 9922-C61 Neonatal Intensive Care Sub-Internship Credits: 5
MEDICINE 9923-C61 Pediatrics-Rehabilitation Credits: 5
MEDICINE 9924-C61 Pediatrics-Dermatology Credits: 5
MEDICINE 9925-C61 Pediatrics-Ophthalmology Credits: 5
MEDICINE 9926-C61 Pediatrics-Genetics Credits: 5
MEDICINE 9927-C61 Pediatrics-Neurology Credits: 5
MEDICINE 9928-C61 Pediatrics-Child and Adolescent Psychiatry Credits: 5
MEDICINE 9929-C61 Pediatrics-Plastic Surgery Credits: 5
MEDICINE 9930-C61 Pediatrics-Orthopedic Surgery Credits: 5
MEDICINE 9940-C61 Pediatrics-Allergy and Immunology Credits: 5
MEDICINE 9945-C81 Anesthesiology-Sub-Internship Credits: 5
MEDICINE 9972-C81 Surgery-General Sub-Internship Credits: 5
MEDICINE 9973-C81 Surgery Orthopedics Sub-Internship Credits: 5
MEDICINE 9974-C81 Surgery Neurological Sub-Internship Credits: 5
MEDICINE 9975-C81 Surgery-Trauma Credits: 5
MEDICINE 9976-C81 Surgery-Oral and Maxillofacial Surgery Credits: 5
MEDICINE 9977-C81 Surgical Oncology Credits: 5
Elective in Surgical Oncology.
MEDICINE 9985 Miscellaneous - Medical Clinical Nutrition Credits: 5
Build upon basic (biochemistry/physiology) and clinical science knowledge and skills in order to be able to perform nutrition assessments in children/adults, counsel patients and families on nutrition, order medical nutrition therapy, work with multidisciplinary teams, and appropriately refer for specialized nutrition/feeding services. The elective utilizes didactic instruction, case studies, team projects, individual assignments, and outside reading combined with clinical/community experiences to facilitate student acquisition of knowledge/skills. Gain an appreciation of nutritional therapy from both the clinician and patient/family perspective. Didactic sessions, case studies, and clinical experiences are designed to augment students' outside reading of assigned and suggested references.
MEDICINE 9992 Medical Topics in Health Care I Credit: 1
MEDICINE 9993 Medical Topics in Health Care II Credit: 1

**Physician Assistant Courses**
MEDPA 5501 Anatomy for the Physician Assistant Credits: 3
This course studies the anatomy of the human body and its correlation and relationship of anatomic configuration to diagnosis of clinical problems. Limited to MMSPA students.
MEDPA 5502 Foundations in Basic Medical Science Credits: 4
This course introduces the basic principles of biochemistry, microbiology, immunology, and pharmacology which prepares the student for Science and Practice of Medicine I - IV.
Prerequisites: Limited to MMSPA students.
MEDPA 5503 Research Applications in Medicine Credit: 1
This course introduces the student to clinical research in medicine and its application to clinical decision making through the concepts and principles of evidence-based medicine.
MEDPA 5504 Ethics, Law and Policy Credit: 1
This course examines ethical rules, principles, and theories as they relate to health care.
MEDPA 5505 Clinical Assessment for the PA Credits: 2
This course will focus on developing foundational physical exam and history taking skills for the physician assistant.
MEDPA 5511 Clinical Practicum I Credit: 1
This course will consist of a weekly clinical experience under preceptor supervision emphasizing patient interviewing, physical exam and presentation skills.
MEDPA 5512 Clinical Practicum II Credit: 1
This course will consist of a weekly clinical experience under preceptor supervision emphasizing patient interviewing, physical exam and presentation skills.
**Prerequisites:** MEDPA 5511.

MEDPA 5513 Clinical Practicum III Credit: 1
This course will consist of a weekly clinical experience under preceptor supervision emphasizing patient interviewing, physical exam and presentation skills.
**Prerequisites:** MEDPA 5512.

MEDPA 5514 Clinical Practicum IV Credit: 1
This course will consist of a weekly clinical experience under preceptor supervision emphasizing patient interviewing, physical exam and presentation skills.
**Prerequisites:** MEDPA 5513.

MEDPA 5521 PA Professions I Credit: 1
This course focuses on the history and evolution of the PA profession, intellectual honesty and professional conduct expected of a PA. Effective communication skills and the roles of various health care providers and their role in health care will be introduced.

MEDPA 5522 PA Professions II Credit: 1
This course focuses on the impact of racial, ethnic and socioeconomic health disparities on health care delivery. The student will become aware of differing health beliefs, values and expectations of patients and other health care professionals that can affect communication, decision-making, compliance and health outcomes.

MEDPA 5523 PA Professions III Credit: 1
This course focuses on the concept of licensing, credentialing and legal regulation of the physician assistant. Instruction will also be given in medical coding, billing and legal principles of documentation.

MEDPA 5524 PA Professions IV Credit: 1
This course focuses on health care delivery systems and health policy. Students will also discuss the concepts of public health and how they relate to the role of the practicing PA.

MEDPA 5531 Science and Practice of Medicine I Credits: 9
This is a first of four series course that will address the physiology, pathophysiology, basic medical science, clinical presentation, pharmacotherapeutics, physical exam and clinical skills of disease processes presented in a systems format.

MEDPA 5532 Science and Practice of Medicine II Credits: 12
This is the second of a four series course that will address the physiology, pathophysiology, basic medical science, clinical presentation, pharmacotherapeutics, physical exam and clinical skills of disease processes presented in a systems format.
**Prerequisites:** MEDPA 5531.

MEDPA 5533 Science and Practice of Medicine III Credits: 20
This is the third of a four series course that will address the physiology, pathophysiology, basic medical science, clinical presentation, pharmacotherapeutics, physical exam and clinical skills of disease processes presented in a systems format.
**Prerequisites:** MEDPA 5532.

MEDPA 5534 Science and Practice of Medicine IV Credits: 19
This is the fourth in a four series course that will address the physiology, pathophysiology, basic medical science, clinical presentation, pharmacotherapeutics, physical exam and clinical skills of disease processes presented in a systems format.
**Prerequisites:** MEDPA 5533.

MEDPA 5580 Senior Seminar Credit: 1
This course will focus on discussion, study, and review of previously covered health topics in preparation for the Physician Assistant National Certification Exam (PANCE).

MEDPA 5581 Professional Development for the PA Credits: 0.5
This course focuses on professional development topics for the graduating PA students. Students attend and participate in seminars and discussions pertinent to employment and practice as a PA. Students enroll in the course each of the three semesters that make up the program clinical phase (semesters 5, 6, and 7).
**Prerequisite:** Must be a student in the MMS Physician Assistant program.

MEDPA 5589 Special Topics Credits: 1-3
An opportunity to explore in depth topics not included in usual course offerings. One or more topics will be announced in advance of registration.

MEDPA 5595 Capstone Credit: 1
This course will ascertain the preparation of the PA student for clinical practice by completion of a summative exam and completion and presentation of a final research paper.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Duration</th>
<th>Setting Description</th>
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<tbody>
<tr>
<td>MEDPA 5610</td>
<td>Family Medicine I Rotation</td>
<td>4</td>
<td>4 weeks</td>
<td>Ambulatory family medicine setting</td>
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<tr>
<td>MEDPA 5611</td>
<td>Family Medicine II Rotation</td>
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<tr>
<td>MEDPA 5612</td>
<td>Elective Family Medicine Rotation - 4 week</td>
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<td>MEDPA 5613</td>
<td>Elective Family Medicine Rotation - 2 week</td>
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<td>2 weeks</td>
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<td>MEDPA 5614</td>
<td>Rural Family Medicine Rotation - 4 week</td>
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<td>MEDPA 5615</td>
<td>Rural Family Medicine Rotation - 2 week</td>
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<td>MEDPA 5620</td>
<td>Internal Medicine Rotation I</td>
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<tr>
<td>MEDPA 5621</td>
<td>Internal Medicine Rotation II</td>
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<td>MEDPA 5622</td>
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<td>MEDPA 5623</td>
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<td>MEDPA 5624</td>
<td>Elective Internal Medicine Rotation I - 2 week</td>
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<td>MEDPA 5625</td>
<td>Elective Internal Medicine Rotation II - 2 week</td>
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<td>Emergency Medicine Rotation</td>
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<td>MEDPA 5640</td>
<td>Women's Health Rotation</td>
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<td>Pediatrics Rotation</td>
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<td>MEDPA 5660</td>
<td>General Surgery Rotation</td>
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<td>Behavioral Medicine Rotation</td>
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<td>MEDPA 5671</td>
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</tbody>
</table>
MEDPA 5680 Geriatrics Rotation Credits: 4
This is a required 4-week rotation in a geriatric specialty care setting.

MEDPA 5681 Geriatrics Rotation - 2 week Credits: 2
This is a required 2-week rotation in a geriatric specialty care setting.

MEDPA 5690 Elective Clinical Rotation Credits: 4
This is a 4-week clinical rotation experience in a new setting or an established area that students wish to gain additional experience.

MEDPA 5691 Elective Clinical Rotation - 2 week Credits: 2
This is a 2-week rotation in a newly or recently established clinical setting.

MEDPA 5899 Required Graduate Enrollment Credit: 1
Required Graduate Enrollment.