

Course Bulletin

126371	Introduction to Microbiology: A Molecular Approach			
Subject:	Catalog Nbr:			
MBS	0200			
2019 FALL	Primary	Claudette Gardel		Claudette.Gardel@tufts.edu
<p>Molecular biology is a broadly based discipline that unites the elements of microbiology (e.g., bacteriology, virology, mycology) with cell biology, biochemistry, biophysics, and genetics. This course describes the study of, and the search to understand, the regulation of gene expression in relation to the growth, metabolism, and development of bacteria, viruses, and other infectious agents. The overall course objectives are to 1) teach students to confront biological problems from within a certain framework, 2) encourage students to exercise their analytical and critical faculties to the utmost, and 3) arrive at solutions to the problems presented by applying their acquired knowledge</p>				

126396	Medical Histology			
Subject:	Catalog Nbr:			
MBS	0202			
2020 Fall	Primary	Jeffrey Marchant		jeffrey.marchant@tufts.edu
<p>This course describes the study of form and function of cells, societies of cells (tissues), and organizations of tissues (organs) at the light and electron microscopic levels. As such it combines the principles of traditional cell biology and histology courses. Although lecture and laboratory sessions stress the relationships between structural composition and function, important clinical correlations are provided. The overall course objectives are to 1) develop the concept of the inseparable relationship of form and function, 2) provide adequate perspective and preparation in order to integrate the knowledge of cells, tissues, and organs into the scheme of other basic and clinical biomedical sciences, and 3) demonstrate that the study of cells and tissues is an important approach to the study of the human body in general a strategy that can assist in developing and strengthening powers of critical observation, problem solving, diagnostic reasoning, and judgment.</p>				

126423	Cell Biology			
Subject:	Catalog Nbr:			
MBS	0201			
<p>This course describes the study of form and function of cells, societies of cells (tissues), and organizations of tissues (organs) at the light and electron microscopic levels. As such it combines the principles of traditional cell biology and histology courses. Although lecture and laboratory sessions stress the relationships between structural composition and function, important clinical correlations are provided. The overall course objectives are to 1) develop the concept of the inseparable relationship of form and function, 2) provide adequate perspective and preparation in order to integrate the knowledge of cells, tissues, and organs into the scheme of other basic and clinical biomedical sciences, and 3) demonstrate that the study of cells and tissues is an important approach to the study of the human body in general a strategy that can assist in developing and strengthening powers of critical observation, problem solving, diagnostic reasoning, and judgment.</p>				

126482	Biochemistry			
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Subject: MBS	Catalog Nbr: 0203	2019 FALL	Primary	James Baleja	jim.baleja@tufts.edu
<p>This course describes the study of the chemistry of cells and tissues and presents the biochemical basis for physiologic processes. While emphasis is placed on functional and regulatory aspects, a solid knowledge of the structure of major biochemical substances and of enzymatic reactions is required for understanding how biochemical reactions determine physiologic function and regulation. Although emphasis is placed on normal processes, disease states are presented to show how specific biochemical defects can lead to illnesses. The overall course objectives are to 1) understand how genetic regulation and metabolic reactions determine normal physiologic function, 2) begin to understand the biochemical basis of disease, and 3) use biochemical knowledge to interpret clinical problems.</p>					

126526	Immunology				
Subject: MBS	Catalog Nbr: 0204	2019 FALL	Primary	Peter Brodeur	peter.brodeur@tufts.edu
<p>This course describes the study of the structure and function of the cells, tissues, organs, and molecules that are responsible for protecting the body against invading pathogens and infectious disease. Basic information is provided on host defense mechanisms, origins and functions of immune cells, innate immunity, the complement system, and specific immunity (humoral and cell mediated mechanisms). Topics also include antibody structure and function, antibody genetics and B cell development, T cell differentiation and activation, cellular cooperation and control of the immune response. Important clinical information is also presented including allergy, hypersensitivity and autoimmune disease, underlying mechanisms of transplantation immunology and tumor immunology, various forms of immunodeficiency including HIV, and methods of manipulating the immune system to treat immunologically mediated diseases. The overall course objectives are to 1) introduce students to important concepts in modern medical immunology, and 2) teach immunological mechanisms that have direct clinical application.</p>					

126554	Intro To Clinical Medicine				
Subject: MBS	Catalog Nbr: 0205	2019 FALL	Primary	Richard Glickman-Simon	richard.glickman-simon@tufts.edu
<p>This course represents a survey of clinical medicine as practiced by physicians and other health care providers in Western countries. During the first half, students are introduced to basic human physiology; pathophysiology; and the fundamentals of clinical medicine including history taking, the physical examination, diagnostic testing, and modern therapeutics. During the second half, students apply information learned in the first half to the most prevalent diseases that plaque the developed world. Issues pertaining to population medicine and public health, health promotion and disease prevention, behavioral influences on health, and alternative medicine are also covered in the context of applicable disease states. The overall objectives of the course are to 1) identify the major the determinants of health genetic, environmental, behavioral and social and consider the extent to which physicians can influence their health effects; 2) describe the general processes undertaken to arrive at a diagnosis, formulate a treatment plan, counsel a patient, and assess the</p>					

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benefits and harms of an intervention; 3) explore the relevant professional, ethical and interpersonal parameters that define the patient-physician relationship; 4) explain the scientific rationale behind medical decision-making and identify the major non-scientific factors that influence the day-to-day practice of medicine; 5) illustrate common diagnostic, treatment and preventive interventions for selected conditions and describe the principles governing their safe and effective clinical application; and 6) gain first-hand experience in the collection, organization, interpretation, analysis and communication of clinical information.

126566	Physiology			
Subject:	Catalog Nbr:			
MBS	0206			
2020 Fall	Primary	Douglas Jefferson	douglas.jefferson@tufts.edu	
<p>This course describes the study of the functions and vital processes of the human body. It is divided into four sections: cellular and neuromuscular physiology; cardiovascular and respiratory physiology; renal and gastrointestinal physiology; and endocrine and reproductive physiology.</p> <p>The overall course objectives are to 1) provide students with a thorough understanding of the basic physiologic principles of the human body, 2) integrate physiologic information with other biomedical disciplines, and 3) provide an important foundation for continuing clinical studies, especially in pathophysiology and pharmacology</p>				

126605	Basic Human Pathology			
Subject:	Catalog Nbr:			
MBS	0207			
<p>This course describes the study of diseases in relation to the structural and functional changes in cells, tissues, and organs during the natural histories of specific disorders. The course begins with the principles of general pathology, which focus upon the basic changes in cells and tissues in response to broad pathological processes and pathogenetic mechanisms; it concludes with topics in systemic pathology, which address certain common, important specific disease processes as they affect particular organs or systems in the context of actual patient care.</p> <p>The importance of practical techniques (e.g., morphologic, molecular, immunologic) that reveal pathologic changes in fluids, cells, tissues or organs of patients and result in specific diagnoses that lead to sound clinical care and intervention will also be presented. The overall course objectives are to 1) achieve a mastery of the basic vocabulary of medicine, which allows health care professionals to communicate effectively, 2) develop some special skills needed for pathology, including visual recognition and interpretation of pathologic lesions during examination (physical, gross or microscopic), and 3) develop a working framework for making good, rational, medically-related decisions, which involves gathering appropriate data, organizing pertinent data, interpretation, and generating probable conclusions.</p>				

126646	Intro to Basic and Clinical Human Anatomy			
Subject:	Catalog Nbr:			
MBS	0208			
2019 SUMR	Primary	Robert Willson	rob.willson@tufts.edu	
<p>This course describes the study of the structure of the human body as seen through dissection and medical</p>				

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imaging, including radiography and magnetic resonance. Topics covered include the anatomy of the Extremities, Thorax, Abdomen, and Pelvis. Laboratory exercises will include computer-based dissections using 3-D reconstructions based on the Visible Human Project as well as 2-D cross sections and radiographic images. The overall course objectives are to 1) provide students with an introduction to anatomical and medical terminology and basic information on grossly dissectible structures in the human body, and 2) apply this knowledge to clinical and diagnostic problem-solving.

126692	Nutrition			
	Subject:	Catalog Nbr:		
	MBS	0209		
	2019 FALL	Primary	Grace Phelan	Grace.Phelan@tufts.edu
<p>This course describes the study of the role of specific nutrients in normal metabolism as well as the relationship of nutrition throughout states of life. Topics include the important role of nutrition in the development and treatment of major chronic diseases including heart disease, cancer and obesity; and the relationship of exercise to the maintenance of good health, chronic disease prevention, and the aging process. The overall course objective is to emphasize the value of nutrition and exercise in both health maintenance and disease.</p>				

126823	Thesis			
	Subject:	Catalog Nbr:		
	MBS	0210		
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126870	Genetics			
	Subject:	Catalog Nbr:		
	MBS	0212		
	2019 FALL	Primary	Janet Cowan	Janet.Cowan@tufts.edu
<p>Medical genetics involves the application of genetic principles in the practice of medicine. Medical genetics encompasses diagnosis and treatment of genetic diseases, study of inheritance of diseases in families, mapping of disease genes to their chromosome locations, study of the molecular genetics and pathogenesis of inherited disorders, provision of genetic counseling for families, and recently, investigations of methods for gene therapy. Medical geneticists care for fetuses in utero, newborns, children, and adults with inherited conditions, adults with infertility or recurrent miscarriages, and adults who are genetically predisposed to cancer. Unlike any other field, genetics represents a true integration between the basic and the clinical sciences. The overall course objectives are 1) Given a clinical problem, take an appropriate family history; 2) Given a pedigree, determine the most likely mode of inheritance; 3) Given a disorder, whether Mendelian, chromosomal, or multifactorial in origin, determine the likely risk for other family members; 4) Recognize who might benefit from genetic counseling and provide it if the problem is straightforward, or know to whom to refer patients if the problem is complex; 5) Appreciate how a disease gene is localized, learn the potential benefits of understanding the molecular approach to disease, and appreciate the therapy that can derive from this understanding; 6) Take into account the diversity in genetic makeup as an important factor in preventive health care, diagnosis and treatment; 7) Reduce unnecessary exposure to known and potential physical and</p>				

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chemical mutagenic, teratogenic, and carcinogenic agents; 8) Recognize how environment can affect phenotype; 9) Identify ethical dilemmas in providing genetic services.

126921	Pharmacology			
Subject:	Catalog Nbr:			
MBS	0213			
2019 FALL	Primary	David Greenblatt		dj.greenblatt@tufts.edu
<p>This course will describe the nature and steps in the drug discovery and development processes; differentiate the interplay between basic and clinical pharmacology and the elements of pathobiology and pathophysiology that lead to drug choices in clinical practice; analyze the principles of selective toxicity and the pharmacokinetic and other mechanisms which underlie the rational use of drugs; identify the properties of drug action at specific receptors and the mechanisms of action of select drugs; determine toxic and therapeutic endpoints and drug side effects and list major indications and contraindications for relevant drugs.</p>				

126961	Computerized Motion/Gait Analysis			
Subject:	Catalog Nbr:			
MBS	0222			
2020 SPRG	Primary	Mark Pitkin		mark.pitkin@tufts.edu
<p>The course will cover the planning of clinical trials; procedure of data acquisition, and interpretation of results. It will consist of didactic lectures and computer-based sessions at the Tufts/NESH Center for Human Performance. The course includes materials on NIH funded research projects, and students will learn how to conduct biomechanical trials themselves using the Lab's equipment. Interested students will be able to participate in research projects with their results submitted for publication.</p>				

127048	From A Cell To Cancer			
Subject:	Catalog Nbr:			
MBS	0224			
2020 SPRG	Primary	Carlos Sonnenschein		carlos.sonnenschein@tufts.edu
<p>A course about an evolutionary perspective of development and cancer.</p>				

138644	Transfer Credit			
Subject:	Catalog Nbr:			
TRAN	9999			
<p></p>				

138676	Internal Medicine I			
Subject:	Catalog Nbr:			
PA	0203			

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2020 SPRG	Primary	Jeanine Carlson	jeanine.carlson@tufts.edu
<p>This course will emphasize the pathophysiology of human disease. Focusing upon cardiovascular, pulmonary, hematology, and immunology systems, the natural history of diseases of these systems will be covered. The diagnostic, therapeutic, and preventative measures employed in the management of these disease states will be addressed.</p>			

138677	Internal Medicine II		
Subject: PA	Catalog Nbr: 0204		
2019 SUMR	Primary	Beth Buyea	Beth.Buyea@tufts.edu
2020 SUMR	Primary	Jeanine Carlson	jeanine.carlson@tufts.edu
<p>This course will focus upon diseases of the renal, endocrine, and rheumatologic systems. Infectious disease and oncology will also be discussed. Disease diagnosis, treatment and prevention will be addressed.</p>			

138678	Behavioral Medicine		
Subject: PA	Catalog Nbr: 0210		
2020 SPRG	Primary	Alicia Powell	Alicia.Powell@tufts.edu
<p>This course offers students an introduction to psychiatric disease, its classification of disease states, an in depth look at common psychiatric illnesses seen in general medical practice and emergency practice settings. Topics such as psychotherapy, psychoanalysis, pharmacological intervention, substance abuse and addiction, domestic and child abuse will be discussed also.</p>			

138679	Women's Health		
Subject: PA	Catalog Nbr: 0212		
2020 SUMR	Primary	Henry Klapholz	Henry.Klapholz@tufts.edu
<p>The spectrum of female reproduction, conception, fetal growth and development, prenatal and antenatal care, and reproductive endocrinology will be covered. Students will be given an introduction to the anatomy of the female genitourinary tract as well as gynecologic oncology, its natural course, diagnosis, and treatment. Cardiovascular disease in women will be addressed as will gynecologic infections and sexual assault diagnosis and management. Emphasis will be placed upon history taking, gynecologic examination, counseling, testing, and disease prevention.</p>			

138681	Physical Diagnosis II		
Subject: PA	Catalog Nbr: 0216		
2020 Fall	Primary	Mark Freedman	Mark.Freedman@tufts.edu
<p>Students will continue to learn interview and examination techniques and build upon Physical Diagnosis I. Instructors will assist students in honing their interviewing and examination skills through focused</p>			

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examinations and varying interviewing techniques. Compilation of patient data in written form and oral presentation of patients' medical history and examination results will be emphasized. Some instruction may take place in external clinical sites.

138682	Surgery			
Subject:	Catalog Nbr:			
PA	0217			
2020 SUMR	Primary	Kenneth Hutchinson		Kenneth.Hutchinson@tufts.edu
<p>The course focuses on the basic surgical concepts needed for the PA to function in primary care settings as well as major surgical areas. The course emphasizes surgical concepts, topics and surgical technique as well as attention to examination of the acute abdomen, surgical diagnosis and treatment of common surgical conditions including obstructive, ineffective, and neoplastic diseases of the gastrointestinal tract, cardiothoracic diseases, trauma, and the vascular system. Risk assessment, wound healing, pre and postoperative care will also be addressed.</p>				

138683	Nutrition			
Subject:	Catalog Nbr:			
PA	0218			
2020 SPRG	Primary	Kelly Kane		Kelly.Kane@tufts.edu
<p>Students will be taught the basics of human nutritional needs as well as alterations of these demands during various clinical scenarios and disease states.</p>				

138685	Evidence-based Medicine			
Subject:	Catalog Nbr:			
PA	0220			
2020 SUMR	Primary	Allen Shaughnessy		Allen.Shaughnessy@tufts.edu
<p>Using lectures and small group discussions this course provides a practical approach to making sound medical decisions on the basis of current evidence in the medical literature. Through a series of didactic presentations, group exercises, and reading, students will learn the basic principles of evidence-based medicine. Basic skills in using MEDLINE and other medical databases will be emphasized and practiced. Research principles, research ethics, and basic statistical review will be discussed.</p>				

138686	Orthopedics			
Subject:	Catalog Nbr:			
PA	0223			
2020 Fall	Primary	Joyce Sanderson		Joyce.Dandreo@tufts.edu
2020 Fall	Primary	Kathleen Goreham		Kathleen.Goreham@tufts.edu
<p>This course explores all aspects of diseases and conditions of bones and joints. Emphasis will be placed on the orthopedic examination in conditions such as fracture, dislocation, ligament, tendon, and muscular conditions. Joint aspiration, immobilization, splinting, and casting will be addressed in supplementary workshops.</p>				

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138687	Critical Care Medicine			
Subject: PA	Catalog Nbr: 0227			
	2020 Fall	Primary	Richard Murphy	Richard.Murphy@tufts.edu
Students will be introduced to hemodynamic derangements in multiorgan system failure patients, including shock, trauma, cardiac arrest, acid-base and electrolyte management, and nutritional support. Other topics covered include ventilator management, invasive procedures, and diagnostic methods used in ICU care.				

138688	Procedural Workshops			
Subject: PA	Catalog Nbr: 0240			
	2019 FALL	Primary	Richard Murphy	Richard.Murphy@tufts.edu
	2019 FALL	Primary	Mark Freedman	Mark.Freedman@tufts.edu
	2020 Fall	Primary	Joseph Sansone	Joseph.Sansone@tufts.edu
	2020 Fall	Primary	Mercedes Colangelo	Mercedes.Colangelo@tufts.edu
This course for physician assistants focuses upon common bedside procedure performed in clinical situations. Procedures taught range from vital sign taking and phlebotomy to invasive procedures such as thoracentesis and central line placement. Using peer practicums (phlebotomy and venipuncture) and simulation models for more invasive procedures, key concepts and techniques will be taught.				

138689	Primary Care II			
Subject: PA	Catalog Nbr: 0236			
	2019 SUMR	Primary	Beth Buyea	Beth.Buyea@tufts.edu
	2020 SUMR	Primary	Rosanne Washington	Rosanne.Washington@tufts.edu
This course is a continuation of Primary Care I and offers first year physician assistant students in-depth training in a wide variety of clinically related subjects, including continuing ECG interpretation, Laboratory Medicine, and Public Health Issues. Topics frequently addressed in other courses will be re-introduced in more depth and scope by experienced clinicians and experts.				

138690	Primary Care III			
Subject: PA	Catalog Nbr: 0237			
	2020 Fall	Primary	Rosanne Washington	Rosanne.Washington@tufts.edu
Using a learner-centered approach, this course will incorporate student-led, symptom-based cases to illustrate clinical presentation, diagnostic skills, and management issues with common disease states. Focusing on a varied population, this course will cover a wide range of scenarios encountered within primary care through case creation through evidence-based research, oral presentations and audience participation.				

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138705	Clinical & Funct. Anatomy I			
Subject:	Catalog Nbr:			
PA	0201			
2020 SPRG	Primary	Krista Johansen		Krista.Johansen@tufts.edu
<p>This course teaches the structure and physiologic function of the human body. Utilizing lectures, simulation, and cadavers, students will have a clinically-focused introduction to the organ systems of the head, neck, chest, abdomen, and pelvis. The cellular, cardiovascular, pulmonary, endocrine, gastrointestinal, and neurophysiological components will be presented in sequence to complement other courses given in this and following semesters.</p>				

138706	Clinical & Funct. Anatomy II			
Subject:	Catalog Nbr:			
PA	0202			
2020 SUMR	Primary	Rebecca Lufler		Rebecca.Lufler@tufts.edu
<p>Continuing Part 1, this course will focus upon the musculoskeletal structure and physiological function of the human body utilizing lectures, simulation, and cadavers. Clinical correlation through case studies will be emphasized.</p>				

138707	Internal Medicine III			
Subject:	Catalog Nbr:			
PA	0205			
2020 Fall	Primary	Jeanine Carlson		jeanine.carlson@tufts.edu
<p>Focusing upon the management of disorders of the gastrointestinal tract, this course will also use clinical cases to highlight the natural history of common disease states, their diagnosis, treatment and prevention.</p>				

138708	Pharmacology I			
Subject:	Catalog Nbr:			
PA	0206			
2020 SPRG	Primary	Paul Abourjaily		Paul.Abourjaily@tufts.edu
<p>Focusing upon the principles of pharmacologic action, classification, and drug uses, this will be an introduction into clinical use of medications for various disease states. Emphasis will be placed upon indications, contraindications, bioavailability, drug interactions, dose response, side effects and adverse reactions.</p>				

138709	Pharmacology II			
Subject:	Catalog Nbr:			
PA	0207			
2020 SUMR	Primary	Paul Abourjaily		Paul.Abourjaily@tufts.edu
<p>Continuation of Pharmacology I. Focusing upon the principles of pharmacologic action, classification, and drug</p>				

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uses, this will be an introduction into clinical use of medications for various disease states. Emphasis will be placed upon indications, contraindications, bioavailability, drug interactions, dose response, side effects and adverse reactions.

138710	Professional Practice			
Subject: PA	Catalog Nbr: 0213			
2020 SPRG	Primary	Beth Buyea		Beth.Buyea@tufts.edu
<p>The history of the Physician Assistant profession will be discussed. Topics such as the role of the PA in the US health care system, scope of practice, professional and legal restrictions, national board certification, and state licensure will be addressed. Interdisciplinary dynamics, PA-supervisor relationships, practice management and ownership, billing, federal and private insurers, billing, public policy trends, medical ethics, hospital credentialing, continuing medical education, and medical malpractice will be covered.</p>				

138711	Physical Diagnosis I			
Subject: PA	Catalog Nbr: 0215			
2020 SPRG	Primary	Mark Freedman		Mark.Freedman@tufts.edu
<p>Using traditional lectures, simulated and standardized patients, and small student group interactions, students will be introduced to the basics of history taking and complete physical examination. Development of interviewing techniques and examination skills will be emphasized.</p>				

138712	Neuroscience			
Subject: PA	Catalog Nbr: 0221			
2020 Fall	Primary	Megan Lee		Megan.Lee@tufts.edu
2020 Fall	Primary	Jennifer Patoulidis		Jennifer.Patoulidis@tufts.edu
<p>This course will present neuroanatomy and neurophysiology as they relate to clinical assessment and management of various disease states. History taking, physical examination and diagnostic imaging techniques will be discussed as they apply to neurological disease and trauma.</p>				

138713	Pediatrics			
Subject: PA	Catalog Nbr: 0222			
2019 FALL	Primary	MaryAnn Volpe		maryann.volpe@tufts.edu
2020 Fall	Primary	Lindsay Fox		Lindsay.Miller@tufts.edu
<p>Normal child growth and development will be emphasized as well as diagnosis and management of common childhood diseases and infections. Also discussed will be immunizations and medications used in pediatric practice, their indications, contraindications, and dosage in relation to specific disorders. Pediatric respiratory emergencies, injuries, cancer and hematologic disorders, and child abuse will be covered.</p>				

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138714	Diagnostic Imaging			
Subject:	Catalog Nbr:			
PA	0229			
2019 SUMR	Primary	Robert French	No Email on file.	
2019 SUMR	Primary	Joseph Sansone	Joseph.Sansone@tufts.edu	
2020 SUMR	Primary	Jalil Afnan	Jalil.Afnan@tufts.edu	
<p>Radiologic safety, imaging modalities, indications, contraindications, benefits and risks of use of X-ray diagnosis will be covered. Assessment of common X-rays used in primary care and emergency medicine will be addressed. Students will be taught to recognize common radiologic abnormalities. Other diagnostic tools such as ultrasonography, MRI, CT scanning, and nuclear medicine scans will be introduced.</p>				

138715	Emergency Medicine			
Subject:	Catalog Nbr:			
PA	0225			
2020 SUMR	Primary	Joseph Sansone	Joseph.Sansone@tufts.edu	
2020 SUMR	Primary	Mercedes Colangelo	Mercedes.Colangelo@tufts.edu	
<p>This course provides fundamental instruction in the diagnosis and management of both common and life-threatening patient presentations to the emergency department.</p>				

138716	Geriatrics			
Subject:	Catalog Nbr:			
PA	0230			
2020 Fall	Primary	Richard Dupee	richard.dupee@tufts.edu	
<p>Students will be introduced to the process of aging as it affects the human body and mind. Atypical presentations of common acute and chronic diseases as they are seen in older populations will be addressed as will the challenges of managing various and concomitant disease states. Pharmacologic therapy in older patients, Alzheimer's disease, dementia, patient compliance issues, and end-of-life care will be discussed as well.</p>				

138717	Physical and Occupational Medicine			
Subject:	Catalog Nbr:			
PA	0231			
2019 FALL	Primary	David Blaustein	No Email on file.	
2020 SUMR	Primary	Mark Freedman	Mark.Freedman@tufts.edu	
2020 SUMR	Primary	Beth Buyea	Beth.Buyea@tufts.edu	
<p>Acute and chronic recovery from disease and injury will be covered as it applies to physician assistant practice. Implications of and indications for rehabilitative services, levels of care required, specific interventions and therapies will be discussed.</p>				

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138718	Primary Care I			
Subject: PA	Catalog Nbr: 0235			
2020 SPRG	Primary	Rosanne Washington		Rosanne.Washington@tufts.edu
<p>This course offers first year physician assistant students in-depth training in a wide variety of clinically related subjects, including Medical Genetics, Dermatology, Otolaryngology, and Ophthalmology. Topics frequently addressed in other courses will be re-introduced in more depth and scope by experienced clinicians and experts.</p>				

138719	Capstone Project			
Subject: PA	Catalog Nbr: 0250			
2019 FALL	Primary	Beth Buyea		Beth.Buyea@tufts.edu
<p>This course offers first year physician assistant students in-depth training in a wide variety of clinically related subjects, including Medical Genetics, Dermatology, Otolaryngology, and Ophthalmology. Topics frequently addressed in other courses will be re-introduced in more depth and scope by experienced clinicians and experts.</p>				

138720	Senior Seminars			
Subject: PA	Catalog Nbr: 0238			
2019 FALL	Primary	Joseph Sansone		Joseph.Sansone@tufts.edu
2020 SPRG	Primary	Beth Buyea		Beth.Buyea@tufts.edu
<p>This course offers second year PA students information on a wide variety of clinical and practice-related subjects. These seminars are offered on "call-back" days during their clinical training in an effort to prepare them for future clinical practice. A special in Pain Management is being introduced and will include an innovative curriculum on dealing with acute and chronic pain in clinical practice. Students will also receive instruction in preparing for entering the "business" of medicine and preparing for initial NCCPA certification and ongoing recertification.</p>				

138759	Bioethics for the Physician-Scientist			
Subject: MBS	Catalog Nbr: 0225			
2020 SPRG	Primary	John Castellot		john.castellot@tufts.edu
<p>This course will review the principles of bioethics and discuss approaches to ethical decision making.</p>				

138760	Bioethics for the Budding Clinician			
Subject: MBS	Catalog Nbr: 0226			
2020 SPRG	Primary	John Castellot		john.castellot@tufts.edu
<p>This course will review the principles of bioethics and discuss approaches to ethical decision making.</p>				

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139075	SCPE in Emergency Medicine
Subject: PA	Catalog Nbr: 0301
<p>Familiarizes students with problems encountered in an emergency room. Students are responsible for taking medical histories and performing physical examinations on acute as well as non-emergent patients and presenting these to the medical preceptor. When appropriate, students perform necessary diagnostic and therapeutic measures. Through clinical training and didactic sessions at the clinical site, students may also be exposed to the emergency management and treatment of such conditions as trauma, shock, burns, asthma, poisoning, allergic reactions, seizures, and respiratory failure.</p>	

139076	SCPE in Family Medicine/Ambulatory Care
Subject: PA	Catalog Nbr: 0302
<p>Exposes students to a broad range of experiences that emphasize the patient as an individual and family member. Students are involved in the initial and ongoing assessment of patients in all age groups as well as management of individuals with established diagnoses. In addition to routine health maintenance, students become familiar with common primary care and family medicine problems such as upper respiratory illness, orthopedic injuries, musculoskeletal complaints, hypertension, diabetes, and heart disease. Patient education, counseling, and integration with community services are other components of this rotation. Students may see patients in venues that include hospital ambulatory care clinics, private offices, family medicine practices, clinics and urgent care settings. This experience exposes students to broad aspects of ambulatory medical practice, emphasizing the patient as an individual and family member. Students will have exposure to caring for patients across a broad spectrum of ages. Students typically encounter such common medical problems as community acquired infections, musculoskeletal complaints, hypertension, diabetes, minor trauma, and heart disease. In addition to medical diagnosis and management, patient education, counseling, and integration of community services and arrangement of follow up care are major parts of this rotation. This part of the outpatient experience may be provided in a walk-in clinic or urgent care venue.</p>	

139077	SCPE in Inpatient Internal Medicine
Subject: PA	Catalog Nbr: 0303
<p>During this inpatient hospital rotation, students take and record medical histories and perform physical examinations. It offers students an opportunity to become familiar with the assessment and management of varied medical problems by attending medical rounds and conferences, performing diagnostic procedures, presenting case write-ups, recording progress notes, and working under the supervision of a physician. It emphasizes the skills of collecting, assessing, and presenting patient data for physician review; ordering appropriate laboratory and diagnostic studies; counseling patients about therapeutic procedures; and helping to coordinate the contributions of other health professionals involved in management of the patient.</p>	

139078	SCPE in Surgery
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Subject: Catalog Nbr:
PA 0304

Students in this rotation participate in varied surgical patient care responsibilities, under the supervision of a surgical resident or staff surgeon. Emphasizes general surgery, though students may have some exposure to other surgical specialties and subspecialties. Students assist in surgical patients' initial assessment, which includes obtaining accurate medical histories and performing physical examinations. As members of the surgical team, students participate in preoperative management, including patient education and procedures necessary to prepare patients for surgery. Students assist surgeons in the operating room and have an opportunity to become familiar with operating room procedures and equipment. Students are also involved in patients' postoperative evaluation and management. When possible, students attend surgical grand rounds and other surgically-oriented educational meetings.

139079	SCPE in Behavioral Medicine
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Subject:	Catalog Nbr:
PA	0305

Exposes students to varied mental health problems, in such settings as wards, clinics, and multiservice centers. Students are expected to perform mental status examinations and cognitive testing. Emphasizes recognizing various types of mental health problems that require referral to a specialist and managing problems that can be handled by the non-specialist. Assists students in furthering their understanding of effective patient interactions and the mental health components of health, disease, and disability.

139080	SCPE in Pediatrics
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Subject:	Catalog Nbr:
PA	0306

Develops students' familiarity with outpatient pediatric problems, in training clinics and private pediatric offices. Emphasizes caring for a child from birth through adolescence. Provides opportunities to take medical histories and perform pediatric physical examinations. Stresses diagnosing and managing common childhood illnesses and evaluating growth and development. Assists students in developing skills to counsel parents about immunizations, child visits, growth and development parameters, common psychosocial problems, nutrition, and accident and poisoning prevention. Students may also have the chance to learn how to administer immunizations and perform audio and visual screening.

139081	SCPE in Women's Health
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Subject:	Catalog Nbr:
PA	0307

Enables students to become involved with obstetrical and gynecological services provided by teaching hospitals. Emphasizes pre- and postnatal care, monitoring labor, assisting in deliveries, and developing the necessary skills to deliver a child in an emergency situation. Provides opportunities to take obstetrical histories and perform obstetrical examinations. During this rotation, students are expected to learn how to assess and manage a variety of common gynecological problems and to counsel patients on family planning.

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139082	SCPE in Orthopedics			
Subject:	Catalog Nbr:			
PA	0308			
Offers students an opportunity to care for older and infirm patients in a variety of settings including nursing homes, rehabilitation centers, and convalescent facilities, and exposes the student to issues of caring for patients with sub-acute but in many cases, multiple problems complicated by advanced age, post-acute event recovery issues, and complex social and economic problems commonly seen in this population.				

139403	Medical Physiology			
Subject:	Catalog Nbr:			
PA	0208			
2020 SPRG	Primary	Paul Leavis	paul.leavis@tufts.edu	
2020 SPRG	Primary	Douglas Jefferson	douglas.jefferson@tufts.edu	
This course will review basic principles of normal physiology including central nervous, cardiovascular, pulmonary, gastrointestinal, endocrines, renal, and reproductive systems of the human body. Tracking anatomy, pharmacologic, and internal medicine topics in other courses, these lectures are meant to serve as a foundation of information.				

139475	Critical Evaluation of the Clinical Literature			
Subject:	Catalog Nbr:			
MBS	0228			
Sophisticated yet expensive treatments for uncommon but serious diseases are themselves becoming more common options for patients and their health care providers. These choices, however pose daunting challenges to numerous parties including effected patients, health care providers, health care policy makers, and health plan administrators. These stakeholders need to weigh the safety, efficacy, and cost effectiveness of these novel therapeutics against those already in use. Furthermore, preventive measures against serious diseases need to be established in order to reduce their burden on health care systems. These measures can only be implemented if risk factors for these diseases can be determined. Whether the objective is to identify effective and safe disease treatment regimens or risk factors to prevent disease occurrence, critical review of published evidence is essential in making judgments regarding how well these measures will work. Knowledge of basic epidemiologic and biostatistical tenets is necessary to effect this assimilation of evidence. Students in this course will become familiar with evaluating the strengths and limitations of published studies by reviewing and discussing selected publications. In addition, they will conduct an independent review of a selected paper that will be evaluated as part of their course grade. They will also become familiar with epidemiologic and biostatistical principles that will form the basis of these analyses.				

139725	Clinical Elective in Pediatric Cardiology			
Subject:	Catalog Nbr:			

Course Bulletin

PA	0401
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139726	Clinical Elective in Neonatology
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Subject:	Catalog Nbr:
PA	0402

139727	Clinical Elective in Pediatrics
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Subject:	Catalog Nbr:
PA	0403

139728	Clinical Elective in Pediatric Critical Care Medicine
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Subject:	Catalog Nbr:
PA	0404

139729	Clinical Elective in Emergency Medicine
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Subject:	Catalog Nbr:
PA	0405

139730	Clinical Elective in Obstetrics & Gynecology
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Subject:	Catalog Nbr:
PA	0406

139731	Clinical Elective in Gynecological Oncology
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Subject:	Catalog Nbr:
PA	0407

139732	Clinical Elective in Hematology & Oncology
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Subject:	Catalog Nbr:
PA	0408

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139733	Clinical Elective in Adult Cardiology
Subject:	Catalog Nbr:
PA	0409

139734	Clinical Elective in Cardiac Surgery
Subject:	Catalog Nbr:
PA	0410

139735	Clinical Elective in Thoracic Surgery
Subject:	Catalog Nbr:
PA	0411

139736	Clinical Elective in Critical Care Medicine
Subject:	Catalog Nbr:
PA	0412

139737	Clinical Elective in Rehabilitation Medicine
Subject:	Catalog Nbr:
PA	0413

139738	Clinical Elective in Surgical Oncology
Subject:	Catalog Nbr:
PA	0414

139739	Clinical Elective in Plastic Surgery
Subject:	Catalog Nbr:
PA	0415

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139740	Clinical Elective in Bariatric Surgery	
	Subject:	Catalog Nbr:
	PA	0416

139741	Clinical Elective in Behavioral Medicine	
	Subject:	Catalog Nbr:
	PA	0417

139742	Clinical Elective in Child Psychiatry	
	Subject:	Catalog Nbr:
	PA	0418

139743	Clinical Elective in Family Medicine	
	Subject:	Catalog Nbr:
	PA	0419

139744	Clinical Elective in Orthopedics	
	Subject:	Catalog Nbr:
	PA	0420

139745	Clinical Elective in Geriatrics	
	Subject:	Catalog Nbr:
	PA	0421

139746	Clinical Elective in Palliative Care	
	Subject:	Catalog Nbr:
	PA	0422

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139747	Clinical Elective in Experimental Surgery	
	Subject:	Catalog Nbr:
	PA	0423

139748	Clinical Elective in Rural Medicine	
	Subject:	Catalog Nbr:
	PA	0424

139749	Clinical Elective in Trauma Surgery	
	Subject:	Catalog Nbr:
	PA	0425

139750	Clinical Elective in Primary Care	
	Subject:	Catalog Nbr:
	PA	0426

139751	Clinical Elective in Radiology	
	Subject:	Catalog Nbr:
	PA	0427

139752	Clinical Elective in Interventional Radiology	
	Subject:	Catalog Nbr:
	PA	0428

139753	Clinical Elective in Gastroenterology	
	Subject:	Catalog Nbr:
	PA	0429

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139754	Clinical Elective in Infectious Disease
Subject: PA	Catalog Nbr: 0430

139755	Clinical Elective in Dermatology
Subject: PA	Catalog Nbr: 0431

139756	Clinical Elective in Allergy
Subject: PA	Catalog Nbr: 0432

139757	Clinical Elective in Neurology
Subject: PA	Catalog Nbr: 0433

139758	Clinical Elective in Neurosurgery
Subject: PA	Catalog Nbr: 0434

139759	Clinical Elective in Rheumatology
Subject: PA	Catalog Nbr: 0435

139760	Clinical Elective in Nephrology
Subject: PA	Catalog Nbr: 0436

139761	Clinical Elective in Urology
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Subject:	Catalog Nbr:
PA	0437

139762	Clinical Elective in Nutrition
Subject:	Catalog Nbr:
PA	0438

139763	Clinical Elective in Vascular Surgery
Subject:	Catalog Nbr:
PA	0439

139764	Clinical Elective in Transplantation
Subject:	Catalog Nbr:
PA	0440

139910	Clinical Elective in Pulmonology
Subject:	Catalog Nbr:
PA	0441

139932	Pharmaceutical Products: Survey of Development Principles and Concepts
Subject:	Catalog Nbr:
DRMD	0201
An introduction to the principles and activities that underlie the development of new medical products, including drugs, biologics, vaccines, medical devices and in-vitro diagnostics.	

139933	Clinical Trials Overview
Subject:	Catalog Nbr:
DRMD	0202
An introduction to the concepts, strategies, and activities of clinical studies, from Phase 1 through Phase 4.	

139934	Quantitative Methods Applies to Early Development Processes
Subject:	Catalog Nbr:

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DRMD 0203

The fundamentals of epidemiology and biostatistics that are needed to develop and analyze clinical data obtained from early development activities, including characterization of the target population, adaptive design, and description of results from early testing.

139935

Quantitative Methods Applied to Late Development Processes

Subject: Catalog Nbr:
DRMD 0204

The fundamentals of epidemiology and biostatistics that are needed to conduct randomized controlled trials, including interim analyses, and to conduct post-marketing studies, including cohort studies and registries.

Special topics: Baysean statistics for medical devices and testing in-vitro test kits.

139936

Translational Medicine: From Drug Discovery to Clinical Development

Subject: Catalog Nbr:
DRMD 0205

The principles and activities that build an understanding of the pharmacokinetics and pharmacodynamics of new molecular entities, and the special issues posed by biologicals.

139937

Regulatory Affairs and Compliance

Subject: Catalog Nbr:
DRMD 0207

The principles and practices of regulatory strategy and logistics in representing a company to regulatory agencies; the processes needed to be internally compliant with SOPs and externally consistent with Good Regulatory Practices.

140061

Clinical Elective in Outpatient Psychiatry

Subject: Catalog Nbr:
PA 0442

140095

Mental Illness and its Pharmacologic Management

Subject: Catalog Nbr:
MBS 0229

2020 SPRG Primary David Greenblatt dj.greenblatt@tufts.edu

Emotional disorders and mental illness are commonly encountered in medical practice by primary care physicians, internists, and most of the medical subspecialties. These disorders can present as the principal reason for seeking health care, or as components or consequences of other underlying medical disorders. The majority of such individuals are not referred for specialty treatment by psychiatrists, but rather are managed

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by their primary physicians. The principal objective of this course is to introduce MBS candidates -- the majority of whom will go on to become physicians involved in primary health care delivery -- to the fundamental features of emotional disorders and mental illnesses encountered in clinical medicine, and pharmacologic approaches to management of these disorders. The instructional strategy will involve integrated teaching by Tufts-affiliated physicians having extensive experience in clinical psychopharmacology, together with basic/clinical pharmacology instruction by the course director and other faculty with a focus on mechanisms of psychotropic drug action, principles of appropriate clinical use, and recognition of hazards and adverse reactions.

The course will meet once each week for 12 weeks in the Spring semester for 90 minutes per session, for a total of 20 contact hours. The core topics will be:

- The epidemiology of mental illness, and the relation to primary care medicine.
- Anxiety and panic disorders
- Anxiolytic and anti-panic drugs
- Sleep disorders
- Sedative-hypnotic medications
- The clinical spectrum of depression and mood disorders
- Antidepressant agents
- Bipolar disorder and its treatment
- Schizophrenia and other thought disorders
- Medications used to treat schizophrenia
- Substance abuse and its pharmacologic treatment
- Complementary and alternative medicines
- Genetics of mental illness and its pharmacologic treatment
- Drug interactions in psychopharmacology
- Topical review

140138	Clinical Elective in Pediatric Neurology
Subject:	Catalog Nbr:
PA	0443

140321	Clinical Elective in Otolaryngology
Subject:	Catalog Nbr:
PA	0444

140322	Clinical Elective in Cardiothoracic Surgery
Subject:	Catalog Nbr:
PA	0445

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140323	Clinical Elective in Pediatric Gastroenterology
Subject:	Catalog Nbr:
PA	0446

140449	Clinical Elective in Neurological Intensive Care Medicine
Subject:	Catalog Nbr:
PA	0447

140450	Clinical Elective in Ambulatory Medicine
Subject:	Catalog Nbr:
PA	0448

140451	Clinical Elective in Interventional Medicine
Subject:	Catalog Nbr:
PA	0449

140452	Clinical Elective in Surgical Intensive Care Medicine
Subject:	Catalog Nbr:
PA	0450

140453	Clinical Elective in Neonatal Intensive Care Medicine
Subject:	Catalog Nbr:
PA	0451

140454	Clinical Elective in Urgent Care
Subject:	Catalog Nbr:
PA	0452

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140499	Clinical Elective in Pain Management	
	Subject:	Catalog Nbr:
	PA	0453

140581	Pharmacovigilance Management	
	Subject:	Catalog Nbr:
	DRMD	0206
The principles and practices of individual case report management, signal detection management, and benefit-risk management.		

140582	Marketing Principles	
	Subject:	Catalog Nbr:
	DRMD	0263
The process of planning and executing on the concept, price, and services used in marketing pharmaceuticals in a way that is consistent with the product label.		

140584	Clinical, Regulatory, and Pharmacovigilance Operations	
	Subject:	Catalog Nbr:
	DRMD	0208
The basic operational activities that translate strategies into processes and procedures in conducting clinical trials, preparing documents for regulatory agencies, and conducting safety evaluations that are consistent with Good Operational Practices.		

140585	Capstone Preparation	
	Subject:	Catalog Nbr:
	DRMD	0298

140586	Marketing Principles & Pricing	
	Subject:	Catalog Nbr:
	DRMD	0268
Bringing together 2 related, important areas, this course covers 1) the process of planning and executing on the concept, price, and services used in marketing pharmaceuticals in a way that is consistent with the product label, and 2) pricing and reimbursement of FDA-approved pharmaceuticals.		

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140903	Clinical Elective in Surgery
Subject: PA	Catalog Nbr: 0454

141021	Capstone Implementation
Subject: DRMD	Catalog Nbr: 0299

141022	Project Management
Subject: DRMD	Catalog Nbr: 0211

141023	Principles in Manufacturing & Quality
Subject: DRMD	Catalog Nbr: 0241

141024	Medical Devices
Subject: DRMD	Catalog Nbr: 0242

141030	Introduction to Clinical Neuroscience
Subject: MBS	Catalog Nbr: 0230
<p>Many undergraduates, particularly pre-meds, will have had some background in neuroscience, but few undergraduate courses focus on functional neuroanatomy, which is how neuroscience is taught in medical school. The goal of this course is to give MBS students who have had no prior exposure to anatomy-based neuroscience the background in functional neuroanatomy that will ease them into medical school neuroscience courses. The course integrates neuroanatomy with the underlying function, which makes the material more interesting and allows the student to put together the 'big picture' in a way that may be less possible when learning the material for the first time in the high pressure medical school environment. For example, the spinal cord is taught in the context of its functional units rather than simply as a series of anatomical slices with different components. Each functional unit is accompanied by clinical cases that give insight into how disruptions to function anatomy can give rise to dysfunction. For example, the basal ganglia circuit regulates intention to move and when various elements of this circuit degenerate, disorders of</p>	

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decreased movement (e.g. Parkinson's disease) and uncontrolled movement (e.g. Huntington's disease) become evident. We will explore how the symptoms of the disease reflect the underlying anatomy of the basal ganglia circuit and how the disorders come about - for example, genetic susceptibilities - and we will finish up by talking about the strengths and weaknesses of current treatment. Throughout the course, students will practice using deductive reasoning to solve clinical cases, thereby shoring up their understanding of how functionality relates to structure.

141123	Clinical Elective in In-Patient Medicine			
Subject:	Catalog Nbr:			
PA	0455			

141312	Principles of Electrocardiography			
Subject:	Catalog Nbr:			
PA	0239			
	2019 SUMR	Primary	Richard Murphy	Richard.Murphy@tufts.edu
	2020 SUMR	Primary	Dana Goldense	Dana.Goldense@tufts.edu
<p>This course is an elementary introduction into electrocardiography. Students will learn the basics of electrical impulses generated by the heart's electrical conduction system and the manifestation of these impulses on paper charts and ECG monitors. Students will learn to identify conduction abnormalities, heart blocks, ischemic and infarction changes as generated on ECGs. They will learn to calculate heart rates, axis deviations, and chamber hypertrophy.</p>				

141832	Clinical Elective in Oncology			
Subject:	Catalog Nbr:			
PA	0456			

142540	Integration Seminar			
Subject:	Catalog Nbr:			
PA	0260			
	2020 SPRG	Primary	Richard Murphy	Richard.Murphy@tufts.edu
	2020 SUMR	Primary	Joseph Sansone	Joseph.Sansone@tufts.edu
	2020 SUMR	Primary	Beth Buyea	Beth.Buyea@tufts.edu
<p>The integration seminar is a series of formative and summative academic events as part of the concluding curriculum and milestones of the PA curriculum. Students will present selected case studies from actual patient experiences during their clinical experiences. These presentations will be real cases the student has encountered, including: medical histories and physical findings, details of the diagnostic work up, differential diagnoses, treatments, and actual outcomes. Students will conclude with a discussion of the disease process and address any questions from the audience of fellow students and principal faculty. These presentations</p>				

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provide students with presentation experience, training in consolidation of clinical cases into teaching objects, and an opportunity to address challenging clinical questions from peers.

The two formative PACKRAT Examinations provide detailed content feedback for individual students as well as class performance benchmarked against the national cohort taking the examinations. Similarly, summative examinations such as the Comprehensive Examination and OSCE offer similar content feedback on student performance as well as performance as a cohort. Utilizing these results to pinpoint content or performance deficiencies, Principal Faculty will produce a customized board review lecture series designed to address cohort deficiencies in preparation for clinical practice and the national board examination (PANCE).

The OSCE results will also permit faculty to identify procedural and skill deficiencies in students and allow for individualized remediation sessions during the final weeks of the curriculum.

Utilizing the feedback from the OSCEs, Formative and Summative examinations, the final 4 weeks of the curriculum will be structured to include focused lectures on specific medical topics.

142840	Immunotherapy of Cancer and Autoimmune Disease			
Subject: MBS	Catalog Nbr: 0231	2020 SPRG	Primary	Geoffrey Sunshine geoffrey.sunshine@tufts.edu
2020 SPRG	2020 SPRG	Secondary	Peter Brodeur	peter.brodeur@tufts.edu
<p>In the last few years we have seen a revolution in the treatment of cancer and autoimmune diseases – we cannot turn on the television or open a magazine or newspaper without seeing an ad for some new medication to treat a specific cancer or autoimmune disease.</p> <p>The reasons for this revolution in clinical treatment are clear – advances in “immunotherapy”: the manipulation of some component or arm of the immune response to treat disease. What are these advances? The theory that underlies the successful use of immunotherapy is an extension of the basic immunological concepts taught to students in their first year immunology course. Because the immunology course is so short, however, there is little time to do more than touch on this exciting new and clinically relevant area.</p> <p>Thus, the goal of this proposed elective is to offer MBS students the chance to learn more about the principles - and the practical aspects - of this new area of clinical treatment. The use of any revolutionary treatment always shines a spotlight on unforeseen side effects, and this issue will also be discussed at length.</p> <p>The course will provide an in-depth perspective on the types of immunotherapy currently being evaluated as well as a review of the evolution of immunotherapeutic approaches, including the treatment of allergy. Because the current immunology course does not contain a lecture on vaccination per se, this elective will provide an opportunity for students to understand theoretical and practical aspects of this key topic of major clinical importance. Student discussion of the latest clinical papers will be a key feature of the course.</p>				

143060	Introduction to Dentistry: Ethics, Professionalism, and Dental Anatomy			
Subject: MBS	Catalog Nbr: 0232			
<p>The Introduction to Dentistry course brings highlights of the year one curriculum for dental students at Tufts University School of Dental Medicine. The sessions cover critical components of dentistry: dental ethics,</p>				

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professionalism, and the study of dental anatomy.

Dental professionals possess extensive technical knowledge and clinical skills and are expected to be ethical leaders who exercise sound professional judgment. The ethics and professionalism portion brings forward principles and codes of conduct that guide a dental professional and promote ethical and professional conduct in the classroom, in dental school clinic, and throughout life as a dental professional. Current issues in dental education and the practice of dentistry will be discussed. Students will engage in exercises and discussions to provoke thought, stimulate interest, provide skills, and instill an ongoing commitment to being an ethical dental professional.

The goal for the dental anatomy portion of the course is to acquire basic knowledge about the morphology of human teeth, and how tooth shape, form, and structure relate to their function. The study of dental anatomy provides basic skills needed to practice dentistry. By the end of the course, students will be able to use common terminology, identify characteristics in each tooth form and the relationship to tooth function, how it corresponds with ideal static occlusion. A tooth wax-up exercise is included to reinforce comprehension and begin development of manual skills.

143793	Introduction to Dentistry I: The Profession and Dental Ethics			
	Subject:	Catalog Nbr:		
	MBS	0233		
	2020 SPRG	Primary	Kathryn Ragalis	kathryn.ragalis@tufts.edu
<p>The Introduction to Dentistry I course brings highlights from the year one curriculum for dental students at Tufts University School of Dental Medicine. The sessions cover critical components of the dental profession: a history of dentistry, dental ethics, and professionalism</p> <p>Dental professionals possess extensive technical knowledge and clinical skills and are expected to be ethical leaders who exercise sound professional judgment. The ethics and professionalism portion brings forward principles and codes of conduct that guide a dental professional and promote ethical and professional conduct in the classroom, in dental school clinic, and throughout life as a dental professional. Current issues in dental education and the practice of dentistry will be discussed. Students will engage in exercises and discussions to provoke thought, stimulate interest, provide skills, and instill an ongoing commitment to being an ethical dental professional.</p>				

143794	Introduction to Dentistry II: The Primary and Permanent Dentitions			
	Subject:	Catalog Nbr:		
	MBS	0234		
	2020 SPRG	Primary	Kathryn Ragalis	kathryn.ragalis@tufts.edu
<p>The Introduction to Dentistry II course brings highlights from the year one course for dental students at Tufts University School of Dental Medicine. The sessions cover both the primary and permanent dentitions.</p> <p>The course covers basic knowledge about the morphology of human teeth, and how tooth shape, form, and structure relate to their function. The study of dental anatomy provides basic skills needed to practice dentistry. By the end of the course, students will be able to use common terminology, identify characteristics</p>				

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in each tooth form and the relationship to tooth function, how it corresponds with ideal static occlusion.

A tooth wax-up exercise is included to reinforce comprehension and begin development of manual skills.

143795	Cancer Biology and Molecular Oncology		
Subject:	Catalog Nbr:		
MBS	0235		
2020 SPRG	Primary	Kurtz Paulson	eric.paulson@tufts.edu
<p>Advancements in understanding cancer biology continue at an impressive rate. Scientific findings lead to better stratification of disease based on molecular drivers, as well as improvements in targeted therapy. These scientific and clinical advancements have, unsurprisingly, lead to improvements in cancer patient morbidity and mortality. In other words, patients survive longer and adjuvant therapies are better tolerated.</p> <p>What are the scientific advances underpinning our deepening knowledge of cancer initiation and metastasis? What are the new, targeted therapies that have led to improved cancer patient survival? The answers to these two questions will be explored through both lecture and discussion of scientific literature and clinical data. We will explore both the concepts of signal transduction and gene expression that underlie the development of targeted therapies and is an extension of the basic cell biology and biochemistry concepts taught to students in first-year courses. The material presented complements, but does not overlap, the Immunotherapy elective. Where appropriate, connections to the Immunotherapy elective will be highlighted.</p>			

143997	Clinical Elective		
Subject:	Catalog Nbr:		
PA	0309		

144017	Ambulatory Medicine-Selective		
Subject:	Catalog Nbr:		
PA	0312		
Ambulatory Medicine-Selective			

144018	Inpatient Medicine-Selective		
Subject:	Catalog Nbr:		
PA	0313		
Inpatient Medicine-Selective			

144362	Basic Human Pathology I		
Subject:	Catalog Nbr:		
MBS	0214		

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2020 Fall	Primary	Paul Kwan	paul.kwan@tufts.edu
Basic Human Pathology I			

144363	Basic and Clinical Human Anatomy		
Subject:	Catalog Nbr:		
MBS	0211		
2020 SPRG	Primary	Robert Willson	rob.willson@tufts.edu
<p>This course describes the study of the structure of the human body as seen through dissection and medical imaging, including radiography and magnetic resonance. Topics covered include the anatomy of the Extremities, Thorax, Abdomen, and Pelvis. Laboratory exercises will include computer-based dissections using 3-D reconstructions based on the Visible Human Project as well as 2-D cross sections and radiographic images. The overall course objectives are to 1) provide students with an introduction to anatomical and medical terminology and basic information on grossly dissectible structures in the human body, and 2) apply this knowledge to clinical and diagnostic problem-solving.</p>			

144364	Basic Human Pathology II		
Subject:	Catalog Nbr:		
MBS	0215		
2020 SPRG	Primary	Paul Kwan	paul.kwan@tufts.edu
Basic Human Pathology II			

144602	Head and Neck Anatomy		
Subject:	Catalog Nbr:		
MBS	0236		
2020 SPRG	Primary	Robert Willson	rob.willson@tufts.edu
<p>This course provides an overview of Head and Neck Anatomy for students who plan a career in Medicine, Dentistry or as a Physician Assistant. It is meant to be a follow-up to MBS 211: Introduction to Basic and Clinical Anatomy, taught earlier in the Spring Semester. Primarily through hands-on dissection, and supplemented by pre-recorded lectures, students will learn the gross anatomical structures of the Head and Neck and the relationship of this region to the organization of the musculoskeletal and nervous systems, vasculature, and lymphatics of the rest of the body.</p>			

144603	The Developmental Origin Of Adult Diseases		
Subject:	Catalog Nbr:		
MBS	0237		
2020 SPRG	Primary	Ana Soto	ana.soto@tufts.edu
<p>Recent clinical and epidemiological studies reveal that changes in the maternal environment play a major role in the genesis of certain diseases in her fetus, and that these diseases manifest once the exposed fetus reaches adult life. The importance of this field of developmental pathogenesis is growing rapidly, and it is expected to become a major medical discipline. For example, nutritional deprivation during gestation, caused</p>			

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by famine, war and migrations increases the likelihood of the fetus developing hypertension and stroke if exposure to famine occurs during the 1st trimester. Fetuses exposed during the 2nd trimester have an increased propensity of developing diabetes and heart disease. Similarly, exposure to certain hormonally-active agents (also known as endocrine disruptors) such as pesticides during fetal and early postnatal development increase the propensity of developing breast cancer during adult life, as does exposure to the estrogen DES before the 13th week of development. Recently, disease susceptibilities (autism, behavioral deficits, cancer, diabetes, obesity, asthma) are also being linked with exposure to environmental toxins. In sum, the environment interacts with the developing organism to produce novel, at times impaired or disease-prone phenotypes. Thus, ecological developmental biology is becoming a medical discipline in the 21st century.

144615	MBS Directed Study
Subject: MBS	Catalog Nbr: 0400
MBS Directed Study	

144653	Physical Therapy Fundamentals
Subject: DPT	Catalog Nbr: 0700
<p>This course is designed to prepare the student for patient care activities including patient-centered communication, assessing vital signs, body mechanics awareness, patient positioning and draping, transfers, assistive device training, and basic exercise. Learners will be introduced to fundamental physical therapy skills for various clinical settings and a patient management framework used throughout the curriculum. Psychomotor skills that are foundational to examination and evaluation are introduced, including vital signs, goniometry, range of motion, muscle testing, and anthropometric measures. Students will begin to develop patient interview and documentation skills, perform examination tests and measures, and use standardized patient outcome measures.</p>	

144654	Evidence-based Practice I
Subject: DPT	Catalog Nbr: 0711
<p>This course introduces the foundation to general research and evidence-based principles by exploring research methodologies and outcome measures used in health care. Introduces foundational concepts of scientific inquiry for clinicians with creating clinical questions, searches appropriate literature sources, and assesses the evidence quality.</p>	

144655	Human Physiology
Subject: DPT	Catalog Nbr: 0703
<p>This course explores the physiology and pathophysiology of the cellular, integumentary, neuromuscular,</p>	

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cardiovascular, and pulmonary systems. Studies medical physiologic principles necessary for physical activity and the associated effects of physical activity on health and wellness across the lifespan.

144656	Human Anatomy I
Subject: DPT	Catalog Nbr: 0705
<p>This course introduces foundational knowledge of gross anatomy and neuroanatomy. Explores clinical application of embryology, histology, and joint structure and function and the forces that affect human movement across the lifespan of the lower quarter. Laboratory experiences include 3-dimensional anatomy software, living/surface anatomy, synthetic human anatomical models, and cadaver prosections. This course addresses the content of the anatomical regions, including the lumbar spine, pelvis, and lower extremities. Emphasis is on the neuromuscular and musculoskeletal anatomy.</p>	

144657	Human Anatomy II
Subject: DPT	Catalog Nbr: 0707
<p>This course expands foundational knowledge of gross anatomy and neuroanatomy. Explores clinical application of embryology, histology, and joint structure and function and the forces that affect human movement across the lifespan of the upper quarter. Laboratory experiences include 3-dimensional anatomy software, living/surface anatomy, synthetic human anatomical models, and cadaver prosections. This course addresses the content of the anatomical regions, including cervical/thoracic spines, thorax, and upper extremities.</p>	

144658	Professional Competencies I
Subject: DPT	Catalog Nbr: 0710
<p>The course defines professional conduct and application of generic skills as they relate to the practice of physical therapy. Throughout this course, students explore the interprofessional roles and responsibilities of the healthcare team, including those of the physical therapist. This course highlights the importance of communication (verbal, nonverbal, and written), individual and cultural differences, professional behavior and abilities, ethics, legal issues, scope of practice, and responsibility for professional development and is designed to prepare students for the professional curriculum and clinical practice.</p>	

144659	Movement Sciences
Subject: DPT	Catalog Nbr: 0713
<p>This course introduces the student to the fundamentals of movement science, offers a framework for understanding normal and abnormal movement, and includes concepts of kinesiology, neuroscience, physiology, motor control, and motor learning. The course will integrate theory and basic principles of motor behavior, motor development, motor control, and motor learning as they relate to human motor performance</p>	

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and gait across the lifespan. Emphasis is on the integration of theory, structured movement analyses of activities performed in daily life, and the International Classification of Functioning, Disability, and Health (ICF) model to inform clinical decision making in physical therapist practice.

144660	Therapeutic Interventions I
Subject: DPT	Catalog Nbr: 0715
<p>This course introduces and integrates musculoskeletal biomechanical principles to joint structure and function, movement analysis, and therapeutic interventions. Introduces the principles and application of therapeutic exercise, manual therapy, and selected physical agents for the management of patients with pain and mobility impairments. Integrates current evidence and clinical decision-making to emphasize appropriate selection, instruction, and progression of interventions.</p>	

144661	Musculoskeletal Practice I
Subject: DPT	Catalog Nbr: 0730
<p>This course initiates examination, evaluation, and treatment sequence of the neuro-musculoskeletal system. This course provides the fundamentals of examination and treatment that will be utilized across the series. This course emphasizes the clinical application of biomechanics, functional movement, and examination principles for musculoskeletal dysfunction specific to the lumbar spine, pelvis, and hip regions. Concentrates on the application of psychomotor skills related to regional palpation, examination, and evidence-based interventions emphasizing patient education, manual physical therapy, and therapeutic exercise in a patient-centered approach across the lifespan. This course begins the development of critical thinking and reasoning strategies through clinical presentations and management.</p>	

144662	Musculoskeletal Practice II
Subject: DPT	Catalog Nbr: 0732
<p>This is the second course in the examination, evaluation, and treatment sequence of the neuro-musculoskeletal system. This course explores the clinical application of biomechanics, functional movement, and examination principles for musculoskeletal dysfunction of the lower extremities. Concentrates on the application of psychomotor skills related to regional palpation, examination, and evidence-based interventions emphasizing patient education, manual physical therapy, and therapeutic exercise in a patient-centered approach across the lifespan. This course begins the development of critical thinking and reasoning strategies through clinical presentations and management.</p>	

144663	Health Promotion and Fitness Management
Subject: DPT	Catalog Nbr: 0718
<p>This course introduces prevention health, wellness, and fitness as they relate to injury prevention, nutritional</p>	

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influences, fitness testing, and exercise prescription in a healthy population. Students develop injury prevention and exercise programs based on test results and adapt the execution to specific healthy populations using proper clinical procedures.

144664	Clinical Neuroscience
Subject: DPT	Catalog Nbr: 0709
<p>This course explores the neuroscience of the movement system, with emphasis on the neuroanatomical structures and neurophysiological functions of the motor and sensory systems that regulate movement. Lab activities emphasize elements of the neurologic examination and an introduction to common outcome measures and assessment tools.</p>	

144665	Therapeutic Interventions II
Subject: DPT	Catalog Nbr: 0725
<p>This course introduces the principles and application of selected physical agents for the management of patients with pain and tissue injury while addressing impairments related to mobility, strength, and motor control. Integrates current evidence and clinical decision-making to emphasize appropriate selection, instruction, and progression of interventions.</p>	

144666	Bracing, Orthotics & Prosthetics
Subject: DPT	Catalog Nbr: 0728
<p>This course provides a foundation for decision making relating to the use of bracing/orthotics/prosthetics in physical therapy practice. The course will introduce concepts of materials, design, fabrication and technology of braces/orthotic/prosthetic devices. The course will emphasize the principles of gait analysis, limb amputation, wearing/fitting of orthotics/prosthetics, importance of therapeutic alliance and interprofessional collaboration, and the psychological considerations of the patient with orthotic/prosthetic devices.</p>	

144667	Pharmacology
Subject: DPT	Catalog Nbr: 0764
<p>This course introduces pharmacologic principles, the study of prescription and/or over-the-counter medications use in the management of a variety of patient conditions encountered during physical therapy management, and their impact on patient management across the lifespan. The impact of medications on patient presentations, timing of rehabilitation sessions, and physical therapy outcomes are emphasized. Content included cardiovascular, pulmonary, neurological, gastrointestinal, musculoskeletal, urogenital, rheumatologic, and integumentary systems.</p>	

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144668	Musculoskeletal Practice III
Subject: DPT	Catalog Nbr: 0734
<p>This is the third course in the examination, evaluation, and treatment sequence of the neuro-musculoskeletal system. This course explores the clinical application of biomechanics, functional movement, and examination principles for neuromusculoskeletal dysfunction of the cervicothoracic region. Concentrates on the application of psychomotor skills related to regional palpation, examination, and evidence-based interventions emphasizing patient education, manual physical therapy, and therapeutic exercise in a patient-centered approach across the lifespan. This course builds on the student's critical thinking and reasoning strategies through clinical presentations and management.</p>	

144669	Musculoskeletal Practice IV
Subject: DPT	Catalog Nbr: 0736
<p>This is the final course in the examination, evaluation, and management of the neuro-musculoskeletal system. This course explores the clinical application of biomechanics, functional movement, and examination principles for musculoskeletal dysfunction of the upper extremities. Concentrates on the application of psychomotor skills related to regional palpation, examination, and evidence-based interventions emphasizing patient education, manual physical therapy, and therapeutic exercise in a patient-centered approach across the lifespan. This course builds on the student's critical thinking and reasoning strategies through clinical presentations and management.</p>	

144670	Neuromuscular Practice I
Subject: DPT	Catalog Nbr: 0740
<p>This is the introductory course in the examination and management of movement disorders and neurological conditions stemming from the central nervous system pathology, with emphasis on stroke, spinal cord, and traumatic brain injury. Lab experiences apply neuroplasticity principles to recovery-based treatment techniques and develop patient management skills for patients with neurologic dysfunction. This course builds on the student's critical thinking and reasoning strategies through clinical presentations and management in a patient-centered approach.</p>	

144671	Neuromuscular Practice II
Subject: DPT	Catalog Nbr: 0745
<p>This is the second course in the examination, evaluation and management of specific neuromuscular disorders including movement disorders and neurological conditions. This course focuses on central nervous system pathology, with emphasis on movement disorders, vestibular conditions, motor neuron diseases, and cerebellar conditions. Lab experiences continue to develop critical thinking and reasoning, and psychomotor skills for treatment and management of patients with neurologic disease. This course builds on the student's critical thinking and reasoning strategies through clinical presentations and management in a</p>	

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patient-centered approach.

144672	Mindful Patient Management
Subject: DPT	Catalog Nbr: 0753
<p>This course explores the professional roles physical therapists need for culturally competent interactions with patients, healthcare team members, and society. Applies the principles of "mindful practice" and patient centered care to improve the therapeutic alliance including, assessing health literacy, motivational interviewing, cultural awareness, and empathetic caring into the patient care setting. Students use patient scenarios to practice, self-access, and self-reflect on interviewing skills.</p>	

144673	Management of the Aging Adult
Subject: DPT	Catalog Nbr: 0756
<p>This course introduces the physiologic changes of aging and sociologic and economic consequences of the aging population. Natural aging processes and how complicating factors such as vascular compromise, fall risk, and comorbidities negatively impact the aging adult will be addressed. Modules within the course are built from the six domains of health promotion and safety, evaluation and assessment, care planning and coordination across the care spectrum, interdisciplinary and team care, caregiver support, and healthcare systems and benefits. Lab activities focus on patient management skills of the aging adult patient. Students are introduced to usual and pathological changes with aging and are challenged to problem solve treatment issues relevant to the types of older clients seen in physical therapy clinical settings.</p>	

144674	Cardiopulmonary Practice
Subject: DPT	Catalog Nbr: 0750
<p>This course explores the management of patients with cardiovascular, metabolic, and pulmonary causes of movement system dysfunction across a variety of clinical settings. Lab activities include, but are not limited to, ECG analysis, exercise testing, heart and lung auscultation, lung function testing, and chest examinations. Case discussions are presented to enhance communication, safety, patient management skills, and discharge planning. Students develop appropriate observation and clinical skills necessary for completing a comprehensive evaluation and formulating a comprehensive plan of care that considers relevant educational, social, economic and cultural factors. Students will apply models of clinical decision making that include knowledge translation.</p>	

144675	Physical Therapy Practice I
Subject: DPT	Catalog Nbr: 0761
<p>This course develops student examination, evaluation, and intervention skills during an 8-week mentored clinical experience. The student begins to communicate with patients/clients, family, and other professionals</p>	

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in healthcare and begins to appreciate the role of each team member. This is an integrated clinical experience which builds on the didactic and psychomotor courses within the curriculum. This clinical experience is the first practice experience where students are exposed to evidence-based patient management and clinical reasoning skills as an adult learner and a healthcare professional as part of an interprofessional collaborative team.

144676	Evidence-based Practice II
Subject: DPT	Catalog Nbr: 0721
This course expands elements of applied research design and statistics that foster students become intelligent consumers of scientific literature. Items related to measurement, research design, statistical analysis, critical inquiry, and strength of evidence are presented.	

144677	Management of Complex Patients
Subject: DPT	Catalog Nbr: 0770
This course introduces patient management strategies for the medically complex patient. Community-based strategies and outpatient management for patients with primary disease or comorbidities of the cardiovascular, pulmonary, metabolic, oncologic, lymphatic, and integumentary systems are emphasized. Students will design individual and community-based interventions for effective screening and disease management that will be used in their community service project later in the curriculum.	

144678	Management of the Pediatric Patient
Subject: DPT	Catalog Nbr: 0780
Using a framework of normal development from birth to young adulthood, this course presents fundamental concepts for the physical therapy management of children and adolescents with musculoskeletal, neurological, and cardiopulmonary dysfunction. Topics include atypical developmental and associated impairments, functional limitations and participation restrictions. Topic of family centered care, advocacy, and assistive technologies are implicit in this course.	

144679	Advanced Diagnostics
Subject: DPT	Catalog Nbr: 0790
This course integrates concepts of advanced diagnostic testing and imaging of the major systems of the body regions related to physical therapy practice. Specific content reviews diagnostic ultrasound, magnetic resonance imaging, computed tomography, nuclear medicine, and radiographs. Rationale and guidelines for examination selection are introduced, and clinical scenarios provide an emphasis on critical thinking regarding the utility and interpretation of medical diagnostic tests.	

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144680	Advanced Therapeutic Interventions
Subject: DPT	Catalog Nbr: 0810
<p>This course expands on the students' critical thinking, clinical reasoning, and management of patients with movement system dysfunctions. This course is a progression of techniques related to spinal stabilization, movement impairments, and soft tissue dysfunction. Interventions include a progression of exercise therapy, manual therapy techniques dry needling, manipulation, mobilization, muscle energy, proprioceptive neuromuscular facilitation, and proprioceptive/vestibular treatments. Students are provided with expanded knowledge and skills from foundational content previously taught. Lab activities use case scenarios to challenge clinical reasoning for the development and progression of comprehensive treatment plans.</p>	

144681	Business Management
Subject: DPT	Catalog Nbr: 0814
<p>This course provides an overview of basic business principles, as it relates to the practice of physical therapy with a systems-based thinking healthcare approach. Students will gain knowledge on various topics related to healthcare business management. There is a specific focus on understanding payer relationships, diagnostic coding, current procedural terminology, clinical productivity, and operating margin. The course will prepare students to be stewards of fiscal responsibility in the field of physical therapy</p>	

144682	Primary Care Physical Therapy
Subject: DPT	Catalog Nbr: 0817
<p>This course explores the therapist's role as an interdependent practitioner working within a collaborative medical model. Presenting the clinical tools and decision-making processes necessary to more efficiently and effectively collect, evaluate, and communicate examination data while promoting differential diagnostic principles and clinical decision-making. This course will have a service-learning experience for the students' annual wellness screening to improve the health of Tufts community.</p>	

144683	Physical Therapy Practice II
Subject: DPT	Catalog Nbr: 0821
<p>This course advances the student's ability to perform examination, evaluation, and intervention skills during an 8-week mentored clinical internship. The student further develops the ability to communicate with patients/clients, family, and other healthcare professionals. Emphasizes evidence-based patient management and clinical reasoning skills as an adult learner and a healthcare professional as part of an interprofessional collaborative team.</p>	

144684	Integrative Pain Sciences
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Subject: Catalog Nbr:
DPT 0826

This course provides an overview of managing people with chronic pain syndromes associated with neuromusculokeletal disorders and psychosocial factors using emerging and contemporary concepts of pain assessment, treatment, and outcomes. This course builds on the previous courses within the curriculum on the pain management domains and core competencies that were integrated within the body systems. Built from contemporary models, this course reflects the interprofessional consensus of core competencies for prelicensure health professions education in patient management. This course emphasizes the core knowledge necessary for offering best care of patients and provides integrated interprofessional discussion on comprehensive pain management designed to improve patient outcomes.

144685	Capstone Course
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Subject:	Catalog Nbr:
DPT	0840

This course integrates and applies cumulative knowledge gained from all previous didactic courses and clinical internship experiences. Throughout this course, students will be engaged in reflective practice in three main areas including integration of content learned through the curriculum, direct application relative to patients managed in the clinical experiences, and professional growth since commencing their DPT education. Students will also articulate how they will uphold the 8 core values for physical therapists as outline by the American Physical Therapy Association. Finally, students develop a plan of study for the National Physical Therapy License Exam.

144686	Professional Competencies II
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Subject:	Catalog Nbr:
DPT	0833

Prepares students professionally and emotionally for physical therapy clinical practice, including roles as a lifelong learner, clinical research, advocacy roles, and clinical educator. Explores major forms of health care delivery and how they interact with physical therapy services, including but not limited to, medical ethics, health care regulations, and risk management strategies. This course blends topics through case applications that explore communication, individual and cultural differences, professional behavior and abilities, ethics, legal issues, and risk management within patient care.

144687	Physical Therapy Practice III
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Subject:	Catalog Nbr:
DPT	0831

Progresses students to entry-level patient management skills during a 15-week mentored clinical internship. The student refines the ability to communicate with patients/clients, family, and healthcare professionals. Develops advanced evidence-based patient management and clinical reasoning skills. Emphasizes evidence-based patient management and clinical reasoning skills as an adult learner and a healthcare professional as part of an interprofessional collaborative team.

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144777	Preparation for Clinical Practice			
Subject:	Catalog Nbr:			
PA	0290			
2020 Fall	Primary	Beth Buyea		Beth.Buyea@tufts.edu
<p>The Preparation for Clinical Practice seminar is a multi-faceted course that encompasses callback days during the clinical year as well as formative assessments throughout the didactic year and clinical year. The culmination is a summative assessment (OSCE) to include evaluation of history taking, physical examination, diagnosis and management of a patient complaint, and patient education.</p>				

144935	COVID-19			
Subject:	Catalog Nbr:			
CMPH	0369			
2020 SUMR	Primary	Anthony Schlaff		anthony.schlaff@tufts.edu
<p>This course provides an overview of the emerging COVID 19 pandemic in real time, from a range of disciplinary perspectives. The course draws on the expertise and perspectives of a range of faculty in the department. At the end of the course, the student will be able to describe the pandemic, describe and analyze the US response to the epidemic to date, and forecast possible future scenarios for both this pandemic and potential future ones. The course is presented as a set of independent, asynchronous modules, allowing students and faculty the greatest amount of flexibility in completing the work of the course during a time of great change and uncertainty. Each module will include a set of learning materials and a curated discussion board. Students will complete a final paper linked to one or more of the modules of the course.</p>				

144986	Physiology I			
Subject:	Catalog Nbr:			
MBS	0216			
Physiology I				

144987	Physiology II			
Subject:	Catalog Nbr:			
MBS	0217			
Physiology II				