CLINICAL INVESTIGATION AND TRANSLATIONAL SCIENCE

The Master of Science in Clinical Investigation and Translational Science (MSCI-TS) Degree Program trains clinicians and health care professionals from a variety of disciplines in the conduct of clinical investigations. MSCI-TS program applicants must provide proof of a health professional degree (*e.g.*, M.D., D.D.S./D.M.D., or B.S. in nursing and/or allied health) or a B.S./B.A. or M.S. degree with emphasis in a health-related discipline. Students in the MSCI-TS Program must complete a mentored research project over two years while participating in a highly integrated set of didactic courses leading to the MSCI-TS degree.

The goal of this program is to prepare investigators skilled in the conduct of outstanding clinical and translational research across a broad range of health care settings.

The MSCI-TS Program has an open application policy and will accept online applications for admission at any time.

Admission deadlines (https://www.uthscsa.edu/academics/biomedical-sciences/programs/clinical-investigation-translational-science-ms/application/) can be found on the program webpage.

All applicants should have an educational background in the biological or biomedical sciences prior to admission to the program.

All transcripts from foreign institutions (including GPA) must be evaluated and submitted by a NACES member foreign credentialing evaluation agency (https://www.naces.org/members/).

A grade point average (GPA) no lower than B (3.0 in a 4.0 system) in the last 60 hours of coursework for a B.S./B.A. degree or a GPA of at least a 3.0 for applicants with a M.S. degree.

A minimum score of 84 or 4.5 (after 1/21/2026) on the internet-based version of the Test of English as a Foreign Language (TOEFL), a band score of 7.0 on the Academic version of the International English Language Testing System (IELTS) or a minimum score of 115 on the Duolingo English Test for applicants from countries where English is not the native language.

Scores on TOEFL or IELS tests taken more than two years prior to the date of application will not be accepted.

Letters of recommendation (3) attesting to the applicant's readiness for graduate level studies in clinical investigation.

- Residents or fellows in an approved health science center residency or fellowship program are required to submit a letter from the departmental chair with a statement indicating the availability and approval of release time for the completion of MSCI-TS educational and research activities.
- Similarly, for health science center staff, an authorized supervisor must provide a statement indicating the availability of release time for MSCI-TS educational and research activities.
- Faculty who are not tenured, who will not be tenured prior to completing the MSCI-TS Program, are required to submit a letter from the department chair with approval signatures of the dean and the health science center president in accordance with the HOP 3.2.5 Policy (https://wp.uthscsa.edu/compliance/wp-content/uploads/sites/174/2021/06/HOP_3.2.5.pdf).

A personal statement (1-2 pages) that includes a brief description of the applicant's educational background, long term research and career goals, and an indication of the basis for application into the MSCI-TS Program including how this program fits into the applicant's career objectives.

A current curriculum vitae is required.

Applicants requiring a student visa (requires full-time enrollment) are required to establish a supervising professor at the time of application for the fall semester in which they intend to matriculate.

Degree Requirements

Successful completion of the MSCI-TS Program requires the satisfactory completion of all required coursework, completion of a MSCI-TS COGS approved research project, submission of a manuscript to a peer-reviewed publication, and MSCI-TS COGS approval of the student's manuscript. (Note: The manuscript must be related to the student's approved research project and approved by the MSCI-TS COGS in order to satisfy the manuscript requirement of the MSCI-TS Program.) A total of thirty (30) semester credit hours (SCH) are required to obtain the MSCI-TS degree along with a cumulative GPA of 3.0.

Coursework. Students must satisfactorily complete all *required didactic courses*. MSCI-TS elective courses may be taken and counted towards the thirty (30) SCH graduation requirement.

Research Project Proposal. A supervising professor, Research Supervising Committee (RSC), and written research proposal must be submitted (within the first year in the program) and approved by the MSCI-TS COGS, for the student to enroll in TSCI 6097 - Mentored Research.

After MSCI-TS COGS approval, the student will begin participating in mentored research activities under the direction of the supervising professor and register to receive research course credit (TSCI 6097 – Mentored Research in Clinical Investigation). The Research Course is set up for the student to conduct their mentored research project under the guidance of their supervising professor.

Student/Supervising Professor Compact. The Compact Between MSCI-TS Student and Supervising Professor form must be submitted with the student's initial research proposal packet. The compact will be reviewed by the student and their supervising professor and submitted with the Student Semi-Annual Evaluation for approval by the MSCI-TS COGS for approval each fall semester.

Semi-Annual Student Evaluation. Students are required to submit a Semi-annual Student Evaluation form each semester while enrolled in TSCI 6097 - Mentored Research.

Manuscript. A basic tenet of the MSCI-TS Program is the expectation that MSCI-TS students should make a significant contribution to the peer-reviewed literature. Thus, upon satisfactory completion of all required courses, and with the approval of the supervising professor and Research Supervising Committee (RSC), each student is required to submit a manuscript to the MSCI-TS COGS for review and approval towards their eligibility for candidacy for the MSCI-TS degree.

The manuscript must have already been submitted to a peer-reviewed scientific journal – it must have been submitted, in press or published during the interval that the student was enrolled in the MSCI-TS

Program. (Note: Details and requirements are provided in the Manuscript Requirement section of the MSCI-TS Handbook.)

Plan of Study

First Year Fall		Credit Hours
TSCI 5070	Responsible Conduct of Research	2
TSCI 5071	Patient-Oriented Clinical Research Methods-1	2
TSCI 5072	Patient-Oriented Clinical Research Biostatistics-1	2
TSCI 6001	Introduction To Translational Science	1
Elective Hours		1-11
	Total Credit Hours:	**8.0-18.0**

First Year Spring		Credit Hours
TSCI 5073	Integrated Molecular Biology With Patient-Oriented Clinical Research	1
TSCI 5074	Data Management, Quality Control And Regulatory Issues	2
TSCI 6060	Patient-Oriented Clinical Research Methods-2	2
TSCI 6061	Patient-Oriented Clinical Research Biostatistics-2	2
Elective		1-11
	Total Credit Hours:	**8.0-18.0**

Second Year Fall		Credit Hours
TSCI 5075	Scientific Communication	2
TSCI 5080	Integrating Molecular Biology with Patient-Oriented Clinical Research Practicum	1
TSCI 6065	Health Services Research	2
TSCI 6097	Research	1-4.5
	Total Credit Hours:	**6.0-9.5**

Second Year Spring		Credit Hours
TSCI 6098	Thesis [2]	1
TSCI 6097	Research [2]	1-4.5
	Total Credit Hours:	**2.0-5.5**

[1] Research TSCI 6097 must be taken twice.

[2] No formal classes should be required during this semester. The research project should be completed and a manuscript prepared and submitted. After research and thesis required hours are complete, additional hours may count towards elective hours.

Note: Semester Credit hours accrued for TSCI 6097 and TSCI 6098 will count towards the student's Elective requirement.

Objectives/Program Outcomes

- Fundamental knowledge of and practice of ethics in research.
- Competence in principles of research design/methods and data management/analysis.
- Communicate research effectively in written and verbal communication.
- Competence in research literature review and interpretation.
- Conduct mentored research and submit results for publication.

Program Specific Policies for Student Research Projects

A supervising professor, Research Supervising Committee (RSC), and written research proposal must be approved by the MSCI-TS COGS before a student can enroll in TSCI 6097 Research (Mentored Research in Clinical Investigation).

Any changes to a student's supervising professor, RSC, and written research proposal must be approved by the MSCI-TS COGS.

MSCI-TS students with an approved research project are required to prepare a semi-annual written report of progress for consideration by their RSC prior to the fall (August 31st) and spring (February 28th) semester deadlines.

Program Specific Policies for Laptop Computers

Students are required to have a laptop computer that can connect to and operate over a wireless network.

Software required:

- Microsoft Office Suite (Available to students through institutional license).
- Stata/IC (latest version required for TSCI 5072 Patient-Oriented Clinical Research Biostatistics-1)

Laptops with an Apple-based operating system must be able to also operate using a Windows-based operating system.

Courses

MEDI 3105. Medicine Clerkship. 8 Credit Hours.
The objectives of this clinical experience are to provide opportunities for students to develop patient evaluation skills, productive self-learning techniques, a sound pathophysiological approach to medical disease, a concern and awareness for the patient's needs, and personal professional behavior. The student spends eight weeks, divided into two 4-week blocks, assigned to the inpatient General Medicine Service. An additional four weeks are spent in outpatient services. Bedside clinical teaching is emphasized by asking the student to perform patient evaluations, to contribute to the care of selected patients, and to participate in the clinical rounds of the services. During this clerkship the student receives intensive instruction from the Internal Medicine house staff and faculty. In addition, the student is expected to undertake independent patient-oriented reading and to systematically review pertinent information introduced during the preclinical years. Finally, students attend a series of clinical conferences including medical grand rounds, morbidity and mortality conferences, clinical subspecialty conferences, and organized courses in electrocardiography and nutrition. Successful completion of all required preclinical courses is prerequisite to enrollment in any of the clinical clerkships. The student spends eight weeks, divided into two 4-week blocks, assigned to the inpatient General Medicine Service. An additional four weeks are spent in outpatient services. Bedside clinical teaching is emphasized by asking the student to perform patient evaluations, to contribute to the care of selected patients, and to participate in the clinical rounds of the services. During this clerkship the student receives intensive instruction from the Internal Medicine house staff and faculty. In addition, the student is expected to undertake independent patient-oriented reading and to systematically review pertinent information introduced during the preclinical years. Finally, students attend a series of clinical conferences including medical grand rounds, morbidity and mortality conferences, clinical subspecialty conferences, and organized courses in electrocardiography and nutrition.

MEDI 4000. Special Topic. 4 Credit Hours.
This is a self-designed course created by both the student and the department to cover a specific topic. A Course Approval Form must be completed along with documentation of the designed course description.

MEDI 4002. Clinical Cardiology. 4 Credit Hours.
Students are required to participate in inpatient consultations and outpatient clinics evaluating patients with cardiovascular disease. Students are required to perform inpatient consultations at University Hospital and Audie L. Murphy V. A. Hospital. Students are required to perform appropriately focused history and physical exam, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plan on each assigned patient. Students are required to also have learning opportunities in ECG interpretation, the cardiac catheterization laboratory, and non-invasive test interpretation such as exercise treadmill testing and echocardiograms. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4006. Coronary Care Unit - Subinternship - VA. 4 Credit Hours.
This subinternship is designed to prepare students for the intense and responsible role of the intern. The subintern is an integral member of the team and is required to participate in all team activities and participate in all medical care for his/her patients, under the supervision of the Internal Medicine resident, Cardiology fellow, and Cardiology attending. Students are required to care for patients in the CCU and Telemetry ward. The student will be involved in the inpatient care of patients with cardiac disease, including critically ill patients needing hemodynamic and respiratory monitoring and ventilation support. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4007. Cardiology Care Unit Sub-Internship-SAMMC. 4 Credit Hours.
This subinternship is designed to prepare students for the intense and responsible role of the intern. The subintern is an integral member of the team and is required to participate in all team activities and participate in all medical care for his/her patients, under the supervision of the Internal Medicine resident, Cardiology fellow, and Cardiology attending. Students are required to care for patients in the CCU and Telemetry ward. The student's clinical performance will be evaluated by the supervising attending. Students are required to participate in the care of patients with a wide spectrum of acute and chronic cardiovascular problems. Emphasis is placed on mastering basic physical assessment through history and detailed cardiovascular physical examination and the interpretation of non-invasive and invasive cardiac testing. Students will have exposure to the catheterization laboratory, M-mode, 2-D, and Doppler echocardiography, color flow imaging, exercise testing, and 24-hour dynamic ECG rhythm monitoring and analysis. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4008. Clinical Endocrinology. 4 Credit Hours.
Students are required to participate in inpatient consultations and outpatient clinics evaluating patients with pituitary and hypothalamic disease, adrenal disease, diabetes mellitus, thyroid disorders, and lipid disorders. Students are required to perform inpatient consultations at Audie Murphy VA Hospital and University Hospital. Outpatients will be evaluated in weekly endocrine clinics at the VA Hospital and Texas Diabetes Institute. Students will be responsible for the initial evaluation of assigned patients, presentation of findings from the history and physical exam, interpretation of endocrine testing, and formation of differential diagnosis. If rotation is done as the Ambulatory selective, the student is required to prepare a written essay based upon specific course objectives concerning systems of care. Essays must be submitted on the last day of the rotation and are required to receive a passing grade in the course. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4010. Clinical Dermatology. 4 Credit Hours.
This elective is recommended for students with a serious interest in Dermatology, and for those intent upon further training in Internal Medicine, Family Medicine, and Pediatrics. It offers considerable clinical experience in both outpatient clinics and supervised inpatient consultations. Students rotating at UTHSCSA are required to attend teaching conferences every Wednesday (all day) and Friday afternoons. This didactic time for students and residents includes lectures, journal reviews, text reviews, and clinical Kodachrome sessions. Didactic sessions will be held separately at WHMC and BAMC. Each student is required to do a 10-minute PowerPoint presentation on a topic of choice that is both dermatology related and fits in with choice of residency. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4012. Clinical Endocrinology - WHMC. 4 Credit Hours.
Students will have exposure to a very active clinical endocrinology consultation service, outpatient endocrine clinic, and the performance and interpretation of diagnostic procedures in endocrinology. Students must perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plan on all assigned patients. Clinical performance will be evaluated by supervising attending. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4015. Clinical Gastroenterology. 4 Credit Hours.
Students are required to participate in inpatient consultations at Audie L. Murphy V. A. Hospital (ALMVAH) and University Hospital, outpatient clinics at ALMVAH and University Health System, and special gastrointestinal diagnostic testing under the supervision of Internal Medicine residents, GI fellows, and GI Faculty. Students are required to participate in the independent evaluation of patients with disorders of the gastrointestinal tract, pancreas, and liver. Students are required to become familiar with the application, indications, contraindications, and complications of gastroenterological procedures, as well as the proper preparation of the patient for the procedure. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4017. Gastroenterology - SAMMC. 4 Credit Hours.
Students will be exposed to clinical gastroenterology with didactic instruction, and will work in conjunction with house staff as part of the primary care team. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plan on all assigned patients. Students will have exposure to the full range of special diagnostic procedures including observation of upper endoscopy, endoscopic ultrasound, colonoscopy, flexible sigmoidoscopy, endoscopic retrograde cholangiopancreatography (ERCP), percutaneous liver biopsy, laparoscopy, and related techniques. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4018. Clinical Hematology. 4 Credit Hours.
The consultation service includes clinical exposure to inpatient consultations, conferences, and outpatient clinics. There is opportunity for training in blood and marrow morphology, observation, and performance of special clinical and laboratory procedures. Students are responsible for the following on all assigned patients: history and physical examination, admission/progress notes, doctor's orders, interpretation of laboratory data, formation of differential diagnosis, assessment, and management plan. Students on both services are required to attend conferences including Hematology Clinical Conference, Hematology/Pathology Conference, Bone Marrow Transplant Conference, and Coagulation Conference. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4023. Clinical Infectious Disease. 4 Credit Hours.
Infectious diseases cross all subspecialty lines, especially because antibiotics and antifungal and antiviral agents are employed widely throughout medical practice. This elective will provide practical experience in the diagnosis and management of patients with infectious diseases. There will be particular emphasis upon the pharmacology and pharmacodynamics of antimicrobial agents, selection of appropriate diagnostic tests and therapeutic agents, and the appropriate orientation of the clinician to hospital microbiology laboratories. Students are required to participate in outpatient clinics and inpatient consultations at University Hospital and Audie L Murphy V. A. Hospital and the associated clinics. Students will be responsible for the following in all assigned patients: history and physical examination, written and verbal patient presentations, interpretation of laboratory testing, participation in applicable procedures, development of differential diagnosis, assessment, and management plans. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4024. Infectious Disease - SAMMC. 4 Credit Hours.
The course will provide students the opportunity to obtain a broad experience in the management of infectious diseases. The spectrum of illness ranges from HIV infection to chronic osteomyelitis. Students are required to care for patients with primary infectious disease problems, or patients with major illnesses in whom an infectious complication has arisen, under the direction of the consultation resident, with supervision from the fellow and staff on the Infectious Disease Service. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. Basic bacteriological techniques and specific techniques of bacteriological identification and sensitivity testing are reviewed. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4025. Clinical Nephrology. 4 Credit Hours.
Students are required to participate in the consultation service, outpatient clinics, conferences, acute dialysis unit, and renal biopsy program. A variety of acid-base fluid and electrolyte disorders are seen in addition to the entire spectrum of renal diseases. Student exposure to chronic dialysis and renal transplantation programs is also possible. Students perform appropriately focused history and physical exam, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. If rotation is done as the Ambulatory Selective, the student is required to prepare a written essay based upon specific course objectives concerning systems of care. Essays must be submitted on the last day of the rotation and are required to receive a passing grade in the course. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4026. Nephrology Service - SAMMC. 4 Credit Hours.
The Nephrology Service offers students training and experience in the broad field of clinical nephrology. This consult rotation provides exposure to ambulatory and hospitalized patients with a variety of renal diseases including hypertension, glomerulonephritis, acute and chronic renal failure; exposure to problems of fluid, electrolyte, and acid-base disturbance. While on the service, students will be able to observe acute and chronic hemodialysis. Students are required to perform initial evaluations, including history and physicals, and will, under appropriate supervision, perform selected diagnostic procedures. A didactic lecture series, covering the broader topics of nephrology, is repeated on a monthly basis and the students are expected to attend. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4034. Oncology Consultation Service. 4 Credit Hours.
The students are required to participate in the clinical activities of the Medical Oncology Section of the Division of Hematology/Oncology, with experience on the consultation service at both University Hospital and the VA Hospital, plus intensive outpatient experience in the Oncology Clinics. The inpatient consultation experience provides exposure to management of complex oncology problems. The clinic experience provides exposure to a variety of clinical medical oncology problems and their management in the outpatient setting. The student is required to become familiar with all aspects of supportive care for the oncology patient. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4042. Coronary Intensive Care Unit - Subinternship - UH. 4 Credit Hours.
The objective of this subinternship is to prepare students for the intense and responsible role of the intern. The subintern is an integral member of the team and are required to participate in all team activities and participate in all medical care for his/her patients, under the supervision of the Internal Medicine resident, Cardiology fellow, and Cardiology attending. The student is required to become proficient in the work-up, diagnosis, and management of patients with acute myocardial infarction, acute respiratory failure, and other commonly encountered acute crises; develop expertise at arrhythmia recognition/ therapy, principles involved with airways management/mechanical ventilation. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4043. Clinical Chest Disease Consultation Service. 4 Credit Hours.
Students are required to work in the inpatient and outpatient settings, participating in clinics, inpatient consultations, and division conferences. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. Students are required to actively participate in the work-up and management of patients with acute and chronic lung diseases seen by the Consultation Service and attend Pulmonary clinics at the VA Hospital and UHC-D. Students will be exposed to various diagnostic methods including radiographic, radionucleotide, bronchoscopy, and pleural biopsy techniques. Through active participation, the student should become proficient in interpreting commonly used pulmonary function tests and chest x-rays. Principles and methods involving respiratory therapy, antimicrobial therapy, and evaluation of common pulmonary disorders will be emphasized. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4045. Pulmonary Medicine- SAMMC. 4 Credit Hours.
Students are required to learn the recognition and treatment of acute and chronic pulmonary problems on a consult service with selection and implementation of appropriate treatment modalities. Students also are required to become familiar with pulmonary function testing to include interpretation and application of pulmonary physiology to a clinical setting. Principles of respiratory therapy will be emphasized to include the utilization of respirators and oxygen delivery systems. Clinical projects may be assigned to stress key teaching points. An active pulmonary clinic and complete pulmonary function laboratory will be available for students to gain clinical experience. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4046. General Medicine Ward Subintership-UH/VA. 4 Credit Hours.
The goal of this subinternship is to prepare students for the intense and responsible role of the intern. The subintern is an integral member of the team and is required to participate in all team activities and participate in all medical care for his/her patients, under the supervision of the Internal Medicine resident and attending. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4047. General Medicine Ward Subinternship-SAMMC. 4 Credit Hours.
This subinternship is designed to prepare students for the intense and responsible role of the intern. The subintern is an integral member of the team and is required to participate in all team activities and participate in all medical care for her/his patients, under the supervision of the Internal Medicine resident and attending. No late drops are accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4048. Medical ICU Subinternship - SAMMC. 4 Credit Hours.
The goal of this subinternship is to prepare students for the intense and responsible role of the intern. The subintern is an integral member of the team and is required to participate in all team activities and participate in all medical care for his/her patients, under the supervision of the Internal Medicine resident, Critical care fellow and attending. Familiarization with pulmonary and hemodynamic physiology, as it applies to intensive care medicine, as well as the use and interpretation of data obtained from monitoring instruments, will be covered. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4049. Clinical Rheumatology. 4 Credit Hours.
The differential diagnosis and treatment of rheumatic and autoimmune diseases are taught through active student participation in outpatient clinics, consultation rounds, journal clubs, and division conferences. Students are required to evaluate patients at University Hospital, Audie Murphy VA Hospital, and UHC-D. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. Students will also have exposure to community resources for the special problems encountered by the patients in this clinic and be able to identify different types of medical delivery systems. If rotation is done as the Ambulatory Selective, the student is required to prepare a written essay based upon specific course objectives concerning systems of care. Essays must be submitted on the last day of the rotation and are required to receive a passing grade in the course. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4058. Clinical Pharmacology. 4 Credit Hours.
This selective is an essential course in Drug Prescribing and Therapeutics for future interns in any specialty. It is an excellent opportunity to brush up on drug therapy before entering residency and to avoid causing harm to the patients through mis-prescription of drugs. The drugs of the major therapeutic areas and how they are used are reviewed by specialists from the Departments of Medicine, Psychiatry, Surgery, Pharmacology, and Clinical Pharmacy. Particular emphasis is placed on the use of drugs in clinical scenarios and on developing therapeutic regimens.

MEDI 4062. Allergy-Immunology - WHMC. 4 Credit Hours.
The student will be a member of the Allergy-Immunology Ward Consult Team, along with a staff member, first-year fellow, and usually a resident. Students are required to assist in the evaluation of the inpatient consultations, and in addition see outpatients and attend all Allergy-Immunology Service educational activities. Students are required to perform appropriately focused history and physical exam, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plan on all assigned patients. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4066. Medical ICU Subinternship - UH/VA. 4 Credit Hours.
This subinternship is designed to prepare students for the intense and responsible role of the intern. The subintern is an integral member of the team and is required to participate in all team activities and participate in all medical care for his/her patients, under the supervision of the Internal Medicine resident, Pulmonary fellow, and Pulmonary/Critical care attending. Students are expected to participate in daily hospital rounds, morning report, Grand Rounds, Morbidity and Mortality conference, IM Housestaff conferences. The students are required to actively participate in the work-up and management of patients with critical illnesses under close supervision of the housestaff, fellows, and faculty. During this rotation, the student will be exposed to the fundamentals of ventilation support, airway management, respiratory and hemodynamic monitoring, stabilization and support of the critically ill patient. Emphasis is placed upon a system approach to patient evaluation and will include didactic sessions with critical care faculty in addition to daily rounds. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4068. Geriatric Medicine. 4 Credit Hours.
This rotation offers clinical experience in geriatric internal medicine. The student is required to participate in the Section's outpatient clinic, academic nursing home, and didactic educational activities. The student also has the opportunity for exposure to other multidisciplinary programs in geriatric medicine, including hospital-based home care. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. Students will also have exposure to community resources for the special problems encountered by geriatric patients and have the opportunity to learn to be able to identify different types of medical delivery systems. If the rotation is done as the Ambulatory selective, the student will be required to prepare a written essay based upon specific course objectives concerning systems of care. Essays must be submitted on the last day of the rotation and are required to receive a passing grade in the course. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4074. AHEC Clinic Experience. 4 Credit Hours.
Under the auspices of the UT Health Science Center's South Texas Program, this experience exposes students to primary care of ambulatory patients at various clinical training sites in South, East, West, and the Coastal area of Texas. The goals are to expose you to 1) primary care, 2) community-based practice, and 3) delivery of medical care to underserved/rural populations and health disparities. Please reference the link http://southtexas.uthscsa.edu for more information. The student must spend time working in the office practice of a physician who is board certified in Internal Medicine and/or one of its specialties. In addition, the student can gain experience in preventive services applicable to infectious diseases, tuberculosis, diabetes, etc., and work with health professionals to gain a broader understanding of health care needs and services depending upon the area in which he/she is working. The student will be required to prepare a written essay based upon specific course objectives concerning systems of care. Essays must be submitted on the last day of the rotation and are required to receive a passing grade in the course. Student housing expenses may be covered by the AHEC, but there will be no reimbursement for travel costs. No late drops will be accepted. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4077. EKG Interpretation. 2 Credit Hours.
This rotation is designed for students who have basic to intermediate expertise in reading ECG's and who are motivated to enhance this expertise through independent study. Students have the opportunity to become proficient in the interpretation of ECG's through daily self-study of electrocardiograms. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4078. HIV/AIDS Inpatient Service. 4 Credit Hours.
This elective on the HIV/AIDS Medicine Team 6 at University Hospital offers the opportunity to assume direct patient responsibility under the supervision of a resident, Infectious Disease fellow, and attending faculty. This subinternship is for persons interested in obtaining extensive teaching in HIV disease. It provides practical experience in the diagnosis and treatment of HIV complications such as PCP, CMV, toxoplasmosis, invasive fungal infections, mycobacterial disease, and oncological and neurological complications of this disease. These objectives will be obtained through a team approach to patients with HIV infection involving nurses, physicians, and other staff, and also will include a formal didactic teaching series. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4079. Clinical Preceptorship in General Internal Medicine. 4 Credit Hours.
The student will join the practice of a clinical faculty member practicing general internal medicine in an internal medicine subspecialty in the local community. Activities include hospital rounds, office visits, hospital committee meetings, and an introduction to practice management. Students are required to perform appropriately focused history and physical exams, prepare written and verbal presentations, interpret laboratory data, and develop differential diagnosis and management plans on all assigned patients. Students will also have exposure to community resources for the special problems encountered by patients in the ambulatory setting, and be able to identify different types of medical delivery systems. If rotation is done as the Ambulatory Selective, the student will be required to prepare a written essay based upon specific course objectives concerning systems of care. Essays must be submitted on the last day of the rotation and are required to receive a passing grade in the course. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4086. Mindfulness in Medicine. 0.5 Credit Hours.
Mindfulness is important in one's personal life as well as professional work. It supports the physician in successfully caring for patients, connecting to colleagues and patients, and maintaining personal satisfaction. There is some evidence that mindfulness training in the professional development of physicians helps with effective decision making and reducing medical errors, increases sensitivity to feelings, improves attention and memory, decreases stress, and enhances reflective consideration in problem solving and decision making. Senior students are facing the formative transition to residency training, which is laden with new challenges and stressors such as work demands that conflict with emotional and physical availability for family and friends, an immense amount of new knowledge and skill to acquire, increased work hours in a complex health care system, and coping with death and the potential for errors in patient care. New interns are fearful of making mistakes that harm a patient and worry about their work-life balance. The goal of this course is to provide and apply skills in mindfulness for everyday practice so that learners are armed with the knowledge and techniques to improve their attention, renew their perspective during times of stress, build resiliency, and prevent errors and harm in their professional practice. Learning Objectives: By the end of this course, students should be able to: 1. Identify personal characteristics of leadership, bias, and resiliency and use this self-awareness to enhance professional relationships 2. Integrate techniques of mindfulness into daily life to improve attention to personal well-being, reduce stress, and avoid burnout during residency training 3. Use self-reflective writing to increase self-awareness, broaden perspectives, and cultivate empathy 4. Apply mindfulness to clinical practice to improve patient communication, recognition of error-prone situations, and quality of medical care. Course topics include: 1) Self-awareness and Resiliency; 2) Leadership, Bias, and Collaboration; 3) Mindfulness in Patient Care: Self-care and preventing medical errors; and 4) Narrative Medicine. Learning of course topics will be accomplished with a combination of self-study educational resources and assigned readings, didactic lecture, skills workshops, writing exercises, and small group discussion. Each student will be required to complete a portfolio of reflective writing and surveys, which will be used in small group discussions. To monitor the effectiveness of the course content and teaching methods, students will complete pre- and post-course surveys. Prerequisites: Completion of all core clerkships.

MEDI 4087. Point of Care Ultrasound. 4 Credit Hours.
This elective is designed to introduce students to the use of diagnostic bedside ultrasound in the care of hospitalized medicine patients, and is paired with the Internal Medicine Residency Point of Care Ultrasound Elective. In addition to review of ultrasound physics and machine controls/transducers, students will obtain knowledge and skills in image acquisition, image interpretation and pitfalls/limitations of various cardiac, pulmonary, abdominal and vascular diagnostic ultrasound applications. Other topics include clinical integration of ultrasound skills into patients with shock, cardiac arrest, respiratory failure, and volume status abnormalities. Training will be accomplished with a combination of didactic lectures, provided self-study educational resources, image acquisition skills workshops at the Center for Clinical Ultrasound Education, supervised bedside ultrasound exams of hospitalized medicine/ICU patients and independent ultrasound scanning sessions. Each student is required to complete a portfolio of ultrasound examinations covering the scope of the course material, which will be reviewed with expert faculty on a weekly basis for quality assessment, image interpretation practice and further teaching. The elective is primarily designed for students pursuing residency with an adult inpatient focus. Students must have successfully completed Internal Medicine, Family Medicine, Surgery and Emergency Medicine clerkships before taking this elective.

MEDI 4103. Hematology for the Intern. 0.5 Credit Hours.
The Advanced Hematology course will be taught using care-based discussion. The first session will be a review of red blood cell and white blood cell abnormalities. The remainder of the sessions will focus on two to three specific cases of red blood cell or white blood cell disorders. Discussion will cover differential diagnosis, appropriate laboratory studies, clinical findings, and prognosis. Discussions will include adult and pediatric cases of various types of anemia, leukemia, myeloproliferative disorders, myelodysplastic states, plasma cell disorders, and lymphoma. The pass/fail grade will be determined by attendance and participation in group discussions.

MEDI 4105. Human Rights and Asylum Medicine. 4 Credit Hours.
This elective is geared toward fourth-year medical students interested in working with underserved populations and patients whose health is greatly affected by their personal histories of torture or other abuse, social conditions, and/or legal circumstances. The course's aim is to teach medical students to identify and assist survivors of abuse and to integrate a human rights viewpoint into their practice of medicine. This course will offer instruction on the legal process of refugee placement and application for asylum and for special immigrant juvenile status. It will provide training in diagnosing and evaluating medical evidence of human rights violations. Emphasis will be given to conducting an appropriate trauma-informed interview and physical and psychological examination of a patient with a history of torture or other abuse to complete a forensic evaluation for asylum in the United States. Prerequisites: MEDI 3105.

MEDI 4114. Combined Consultation Service In Geriatrics & Palliative Medicine. 0.5 Credit Hours.
This elective didactic course will introduce the basic elements of assessing a geriatric patient or a patient in need of palliative care in the in-hospital setting.

MEDI 4115. Palliative Care. 0.5 Credit Hours.
This MS4 didactic elective will focus on the main beliefs of palliative care, which include symptom control and end-of-life care in general and in specific populations, fulfilling the following educational principles, applicable to many other areas in medicine: * Communication skills instruction for medical students * Exposure to interdisciplinary teams (IDT) * Instruction in the multicultural practice of medicine.

MEDI 4120. Interpretation of Electrocardiograms. 0.5 Credit Hours.
This course consists of eight one-hour seminar sessions with active student verbal participation. Topics will include ECG basics, axis determination, analysis of rhythms, atrial arrhythmias, ventricular arrhythmias, conduction abnormalities, hypertrophy, ischemia, infarction, and vector analysis. The course will include examples of multiple ECG tracings for discussion, which will be moderated by the course director. Students will be called upon during the sessions to help interpret ECG tracings using the knowledge gained during the course didactics. The grade is based on student participation.

MEDI 4121. Intermediate Bedside Cardio Exam. 0.5 Credit Hours.
Course consists of 8 one hour sessions. Each session will include demonstrations of physical findings and their elucidation in patients with cardiovascular disease. Topics covered will include brief review of cardiac cycle, characteristics of innocent murmurs, systolic murmurs, diastolic murmurs, evaluation of arterial and venous pulsations, congestive heart failure, and self assessment. Grade based on class participation.

MEDI 4150. Tropical Medicine & International Health. 0.5 Credit Hours.
Course consists of 10 contact hours and will cover topics specifically related to health in the tropics and developing world. The course will consist of an introductory lecture and nine 1 hour small group case-based discussions. Students will prepare for the small group discussions through self-initiated study of the provided syllabus and faculty will lead the case-based discussion groups. Student grades will be determined by participation in the small group discussions (50%) and a final exam (50%).

MEDI 4153. Informatics and Advanced Evidence-Based Medicine. 0.5 Credit Hours.
The course is for students who want to master information and evidence. We will use the computer lab to learn advanced skills in: 1) retrieving information, 2) storing and filing information, 3) assessing information, and 4) keeping up with new advances. The skills will include both strategies and techniques. To pass the course, students must complete a small final project that previous students have enjoyed. In their project, they will publish on Wikipedia a short, structured summary of one article for a clinical topic. I will walk you through creating the edits. The edit can be done anonymously if the student prefers. By completing the project, the students learn the goals of the course. Credit for successful completion of the course requires active participation in class activities, a minimum of 100% attendance, and successful completion of final project.

MEDI 4155. Clinical Epidemiology for the Intern. 0.5 Credit Hours.
Clinical epidemiology -- the basic science of clinical medicine that makes predictions about individual patients based on the occurrence of clinical events in groups of similar patients and using strong scientific methods to ensure that the predictions are accurate -- is especially powerful in situations of medical uncertainty. Essential concepts and methods of clinical epidemiology are presented as they pertain to obtaining answers to clinical questions and guiding clinical decision-making with the best available evidence. A case-based approach is used to illustrate the relevance of clinical epidemiological approaches to decision-making about the care of individual patients. Learning activities incorporate both didactic, small-group problem solving approaches, and procedure skills (e.g., central venous line placement, incision and drainage of abscess, lumbar puncture, and thoracentesis). Credit for successful completion of the course will be based on attendance.

MEDI 4170. Internal Medicine Internship Readiness Elective. 4 Credit Hours.
This rotation (Internal Medicine Boot Camp) is a 4-week elective restricted to students who will begin a categorical internal medicine residency in July of that same academic year. The purpose of the course is to present the diagnosis and management of common medicine topics that an IM intern can expect to encounter during residency, enhance differential diagnosis skills of common chief complaints seen on a medicine service, and develop procedural skills and patient evaluation skills. Students are expected to attend all scheduled conferences and interactive laboratory and clinical sessions focused on procedural skills and clinical assessment of standardized patients. Clinical skills labs will include heart sounds using Harvey manikin, intubation, mechanical ventilation, PFT, joint aspiration and placement of central lines. Students will receive training in BLS and ACLS and can receive certification if all classes are attended and performance is satisfactory. Students are required to give an oral presentation on a medicine topic/clinical question. Students must meet expectations of clinical performance and professional behavior based on School of Medicine evaluation for fourth year students to "pass" course.

MEDI 4450. Compassionate Care for the Seriously Ill Longitudinal Elective. 2 Credit Hours.
This rotation offers exposure to the aging and seriously ill population through a longitudinal service-learning elective providing community service engagement through the "No one dies alone" volunteer program (NODA) at University Health System (UHS) and South Veterans Health Care System (STVHCS). Course participants will provide volunteer-role compassionate care to hospitalized aging and seriously ill patients in need through the NODA program; complete on-line learning modules to improve knowledge of the aging and seriously ill patient population; participate in debriefing sessions to integrate volunteer experience with course learning.

MEDI 7000. Off Campus. 4 Credit Hours.
All off campus rotations must be approved by the designated faculty member prior to the beginning of the rotation (at least one week before the course begins). Credit will not be given for any rotation that has not been approved in advance. Required paperwork includes: "Course Approval" form, a written letter or email for acceptance form the physician preceptor with the start and end dates of the course/rotation, and a course description of your learning objectives and responsibilities during the rotation. Forms must include a complete address and telephone number for the off campus location or residence address for the student while at the off campus site. Forms will not be approved after the rotation has already begun. Contact the department for assistance with enrolling in this course.