

**School of Health Professions  
Department of Health Sciences  
and  
Graduate School of Biomedical Sciences**

**Doctor of Philosophy  
in  
Health Sciences**

*Program Handbook  
A Manual for Students and Faculty  
Fall, 2020*

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*THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER at SAN ANTONIO  
(UT Health San Antonio)*

**Doctor of Philosophy in Health Sciences**

**GOALS OF THE PROGRAM**

The School of Health Professions (SHP) and the Graduate School of Biomedical Sciences (GSBMS) are dedicated to excellence in teaching, research, service and patient care. The Doctor of Philosophy (PhD) in Health Sciences program is designed to provide students with an outstanding education in preparation for satisfying careers in education, research and leadership positions in the health sciences.

The PhD in Health Sciences program graduates are prepared to assume roles as health sciences college and university faculty, researchers and leaders. Research skills will be based on the integration of knowledge from the biological, behavioral, educational, management and clinical sciences. Research will contribute to the scientific basis of care provided to patients in order to improve quality, access and cost of health care and related services. Graduates will also have the leadership skills necessary to serve as senior level professionals in their allied health disciplines and influence health care systems and policy.

The overall purpose of the program is to provide an outstanding, high quality education that is relevant and professionally sound to meet the allied health leadership needs of the health care community. Inherent in this purpose is the goal to prepare future faculty and leaders who are able to discover and disseminate new knowledge in the health sciences.

The curriculum is designed to provide core competencies in the areas of research, education and leadership. The specialty tracks are intended to offer advanced, discipline specific cognate courses to ensure that these practitioners are well versed in the latest science related to their specific health disciplines. The goal is to provide experienced allied health professionals with a broad-based, interdisciplinary education that will prepare graduates to teach, practice and perform research across the continuum of health care.

The PhD in Health Sciences is intended to be a broad-based, interdisciplinary/interprofessional degree that will allow graduates to place their individual health field in the context of the allied health disciplines, the health care delivery system as a whole, and the larger issues of health and wellness across the continuum of the health care system. Graduates will be able to conceptualize health outcomes and research provided by the interprofessional care teams of the future. Graduates will also be prepared to address the issues and problems associated with interdisciplinary/interprofessional training and education of future health care professionals.

## THE SPECIFIC GOALS OF THE PROGRAM:

The specific goals of the PhD in Health Sciences program are to:

1. Prepare students to discover and disseminate new knowledge to provide high quality, accessible and cost-effective health care and related services in the allied health sciences.
2. Prepare students to conduct outcomes research to improve patient care and inform health policy
3. Prepare students to develop interprofessional/interdisciplinary collaboration in the design and conduct of research.
4. Prepare students to conduct research that is ethical and responsible.
5. Provide core competencies in the areas of research, education and leadership.
6. Provide advanced, discipline specific cognate courses to ensure these practitioners are well versed in the latest science related to their specific allied health disciplines.
7. Prepare future faculty and leaders in the allied health sciences to teach, practice and perform research across the continuum of health care.

This program is offered in collaboration with the Graduate School of Biomedical Sciences at the University of Texas Health Science Center at San Antonio and core faculty hold appointments in both the Graduate School, as Graduate Faculty, and the School of Health Professions. The program's operational "home base" is within the Department of Health Sciences of the School of Health Professions. The Department of Health Sciences is dedicated to the mission, vision, and values of the Graduate School, the School of Health Professions, and the University of Texas Health Science Center at San Antonio.

### **THE MISSION OF UT HEALTH SAN ANTONIO**

*The mission of The University of Texas Health Science Center at San Antonio (UT Health San Antonio) is to make lives better through excellence in education, research, health care and community engagement.*

Strategies for achieving this mission are:

- Educating a diverse student body to become excellent health care providers and scientists.
- Engaging in research to understand health and disease.
- Commercializing discoveries, as appropriate, to benefit the public.
- Providing compassionate and culturally proficient health care.
- Engaging our community to improve health.
- Influencing thoughtful advances in health policy.

### **THE MISSION OF THE GRADUATE SCHOOL**

*The Graduate School of Biomedical Sciences provides an individualized, diverse and multidisciplinary learning environment for students to develop the knowledge, skills and creativity necessary to succeed in the evolving biomedical disciplines.*

### **MISSION OF THE SCHOOL OF HEALTH PROFESSIONS**

*The mission of the School of Health Professions at the UT Health San Antonio is to make lives better through excellence in education, research, health care and community engagement. We do this through:*

- *Educating a diverse student body to become excellent health care providers and scientists;*
- *Advancing health care through research and scholarship;*
- *Providing outstanding health care services and health care education for our community; and*
- *Providing leadership for the health professions.*

As an integral part of the UT Health San Antonio, the School of Health Professions seeks to prepare outstanding health professionals and leaders while advancing the science and practice of the allied health professions through research, service and patient care. The School of Health Professions integrates patient care, research, scholarship, and service in the teaching – learning process.

### **VISION OF THE SCHOOL OF HEALTH PROFESSIONS**

*The School of Health Professions at the UT Health San Antonio will be recognized as a world class school whose programs are among the best in the United States.*

## **Program Overview**

The Doctor of Philosophy in Health Sciences degree program is designed to prepare health science professionals to assume major leadership, research and educational positions within their professions, as well as to provide career advancement opportunities.

The program will provide a broad-based, interdisciplinary education that will prepare graduates to teach, practice and perform research across the continuum of health care. The program will prepare individuals for careers in research, education and leadership within allied health, and more broadly, within health care and higher education. The program is unique in Texas, providing an interdisciplinary health science core and the opportunity to take additional, discipline specific course work and engage in research relevant to allied health. The outcome of the program will be a graduate who is able to address the larger issues of health and wellness across the continuum of the health care.

The program of study for the Doctor of Philosophy degree involves formal courses and electives in management, education, leadership, research, statistics, health science and advanced course work in one of the offered health science professional tracks. The

completion of a research project, culminating in the defense of a dissertation, is also required.

In most cases, the full-time student will complete formal courses by the end of the third year, although students taking more courses each session may complete formal course work earlier. After passing a comprehensive written examination on fundamental principles related to the Health Professions and the chosen area of specialization, the student must complete and present a dissertation proposal that meets the approval of his or her advisory committee. Following successful defense of the dissertation proposal, the student is accepted into candidacy.

For the remainder of graduate training, the degree candidate will concentrate on the dissertation research project under the direction of his or her research advisor/mentor and committee. The research is conducted over a one to two-year period. The PhD degree, which can usually be earned in four years (post master's degree), demonstrates the capability for independent research and recognizes a unique contribution to scientific knowledge. The program may be taken on a part-time basis with approval of the program director.

The PhD in Health Sciences program consists of four major core areas: Education (12 SCH), Research & Statistics (16 SCH), Leadership (10 SCH) and Professional Track (9 SCH). The nine (9) hours of professional track credit provides advanced cognate courses in specific allied health sciences. Specialty areas may include Emergency Health Systems, Medical Laboratory Science, Health Administration, Occupational Therapy, Physical Therapy, Speech Language Pathology, Physician Assistant Studies and Respiratory Care. Student Learning Outcomes for the PhD in Health Sciences have been developed for each major core area and are mapped to individual courses.

In addition, students will take 12 hours or more of elective and independent study courses. Elective course work may include the advanced biomedical sciences, clinical sciences, education, management and supervision, leadership principles, measurement and statistics, and additional research courses that are available at UT Health San Antonio. Elective courses will require approval by the student's major advisor and the program director, and may be individualized based on the student's interests and career goals. Students may request completion of elective course work at other regionally accredited colleges and universities offering appropriate graduate level coursework.

The minimum number of hours required for award of the PhD in Health Sciences is 98 semester credit hours (SCH). Students holding a master's degree (or higher) in a relevant allied health related discipline will be able to transfer up to 30 SCH into the PhD program. Appropriate master's degrees include specific allied health fields (e.g., physical therapy, occupational therapy, respiratory therapy, speech language pathology, medical laboratory sciences, physician assistant studies) or directly related fields (e.g., health sciences, public health, health care administration). *For students holding an appropriate master's degree, the minimum number of additional semester hours required for the PhD in Health Sciences will be 68 semester hours (not including the master's degree requirement of 30 SCH).*

*Students holding a professional doctorate (e.g., DPT, OTD) may request that up to 21 SCH of additional course work completed in their professional doctoral program be applied toward elective (12 SCH) and/or professional track PhD (9 SCH) program requirements.* However, at least 33% of the student's course work must be completed at UTHSA. A limited number of students may be allowed to enroll concurrently in School of Health Professions professional doctoral programs (e.g. OTD/PhD, DPT/PhD).

Students entering the program with only the bachelor's degree will be required to complete a master's degree in an allied health specialty or complete 30 SCH of acceptable graduate credit for a total of 98 SCH, as approved by their major advisor and program director.

In most cases, students will complete formal program courses by the end of the second year. Following completion of formal courses, students must successfully complete a comprehensive written examination.

After passing a comprehensive written examination on fundamental principles related to the Health Professions and the chosen area of specialization, students must complete and successfully defend their dissertation research proposals (i.e. dissertation prospectus) as certified by their advisory committees. The PhD program is intended to advance the science and practice of the allied health sciences by providing a link between the sciences, clinical research and practice. By incorporating a required research project, the program will increase knowledge within the discipline, provide for interdisciplinary/interprofessional collaboration, and help train future faculty for the field. The PhD degree demonstrates the capability of independent research and recognizes a unique contribution to scientific knowledge. For the remainder of graduate training, degree candidates will concentrate on their dissertation research projects under the direction of their advisor/mentor and committee. Upon completion of candidates' research projects, successful defense of the dissertation is required.

Writing competitive scientific grant proposals is an important competency for our PhD graduate students. To help fulfill this competency, doctoral students may submit their dissertation proposals as an individual fellowship to an external funding agency such as the National Institutes of Health (i.e., F30 or F31) or NSF (GRFP). Ideally, initial submission would be by the end of their third year in the program, although exceptions can be made in the timing to ensure applications have a maximal chance of being funded. While eligible doctoral students are expected to submit a proposal, there may be exceptions for students whose area of research does not align with any known funding source or whose employment precludes such a submission. In those cases, students are encouraged to prepare the application for submission and programs will provide a process to ensure the students receive feedback, so they are benefitting from an appropriate submission/review experience.

The PhD degree can usually be earned in three to four years (post master's degree). The program may be taken on a part-time basis, with approval of the program director, however, students are encouraged to complete the program in seven years or less. Students will be generally expected to complete at least two courses per semester (6 SCH) and attend the program year-round. They will not have summer sessions off and will be expected to complete at least 18 SCH per year.

In summary, the goals of the program are to: (1) prepare competent health science professionals at the doctorate level to assume leadership roles as educators, researchers and leaders; (2)

provide leadership training in specific clinical-related allied health specialty areas; 3) develop individuals who can formulate appropriate questions, organize and test hypotheses, and apply research results to improve health care.

### **Committee on Graduate Studies (COGS)**

The program is supervised by a Committee on Graduate Studies (COGS). The Program COGS is responsible for establishing admission requirements, recommending approval or denial of admission of applicants to the program, overseeing academic curricula, monitoring its students' academic progress in didactic and research activities, attesting eligibility for admission to candidacy for a degree, and verifying to the GSBS Graduate Faculty Council that the student has fulfilled all requirements for the awarding of the degree. The Program COGS Chair is the voting representative of the program on the GSBS Graduate Faculty Council and serves as the liaison officer between the Program COGS and the Graduate School Dean's Office on matters pertaining to student affairs. All student-related matters are managed and adjudicated by GSBS and its decanal leadership.

The GSBS Graduate Faculty Council has the responsibility to establish and maintain policies and regulations on matters of graduate education common to all PhD programs at UT Health San Antonio. These include such matters as general academic requirements for admission to graduate study and to candidacy, for continuation of studies, and awarding of a degree; standards of student professional conduct; grading systems; graduate program review; and criteria for thesis and dissertation research, its supervision, and its defense. The Program COGS is responsible to the GSBS Graduate Faculty Council and submits recommendations on various graduate program matters, including the granting of a degree, to the Council for review and action.

The Dean of the Graduate School of Biomedical Sciences, provides operational, and administrative leadership for the PhD in Health Sciences program. The Dean of the Graduate School of Biomedical Sciences, or a designee of the dean, serves as the Chair of the Graduate Faculty Council. Ex-officio nonvoting members of the Graduate Faculty Council include the Dean of the Graduate School of Biomedical Sciences, (GSBS), the Associate Dean(s) of the Graduate School, the Assistant Dean(s) of the Graduate School, the Director of Doctoral Studies in the School of Nursing, Director of Doctoral Studies in the School of Health Professions, the Director of Doctoral Studies in the School of Dentistry, the Associate Dean of Academic and Student Affairs for the School of Health Professions, and the Registrar. The voting members of the Council consist of the COGS chairs of each graduate program. As described in the GSBS Bylaws, student representative(s) may be elected to serve as a non-voting members of the Council.

### **Admission Requirements**

General graduate admissions standards and program-specific admissions standards are listed below. Applicants must have completed a bachelor's or graduate degree (master's or professional doctorate) in a relevant allied health discipline such as (but not limited to) emergency health sciences, medical laboratory sciences, occupational therapy, physical therapy, physician assistant studies, respiratory care, or speech language pathology. Students entering with a bachelor's degree must take an additional 30 semester hours of graduate level course work, as approved by the individual student's major advisor and the program director as a part of



the student's program plan. These hours may be taken from existing graduate programs offered by UT Health San Antonio as part of one of the existing allied health professional degree programs, or graduate courses offered by the School of Nursing, School of Medicine, School of Dentistry or Graduate School of Biomedical Sciences.

Students entering the program with a master's degree in an allied health related discipline from a regionally accredited college or university will receive credit for up to 30 semester hours of their master's degree professional program. Acceptance of transfer credits from another graduate program must be approved by the Registrar and the student's major advisor and program director.

With permission from their major advisor and the program director, students entering the program with a professional doctorate (e.g. Audiology Doctorate [AuD], Doctor of Physical Therapy [DPT], or Occupational Therapy Doctorate [OTD]), may apply credit from their professional doctoral degree towards the 30-credit hour requirement. With permission of their major advisor, and program director, these students may also request transfer credit for up to 9 SCH of additional doctoral level professional coursework towards the PhD specialization area requirements and up to 12 SCH of elective course work. However, at least 33% of a student's course work for the degree must be completed at UTHSA. A limited number of students may be allowed to enroll concurrently in School of Health Professions professional doctoral programs (e.g. OTD/PhD, DPT/PhD).

Applicants must provide official transcripts from each college or university attended and documentation of appropriate certification and/or licensure (as applicable) in their health profession by a major U.S. certification/licensing agency.

Courses taken outside the United States may be considered for transfer with the approval of the program director, but all such courses must be evaluated by a [NACES member](#) and judged equivalent by U.S. standards.

Students may attend full-time ( $\geq 9$  SCH per semester) or part-time ( $< 9$  SCH per semester) but all students are expected to attend year-round, including summer sessions. Most students will complete at least two courses per session for the fall, spring, and summer sessions for a total (on average) of 18 SCH per year. Students may request a reduced academic load which must be approved by their major advisor and program director.

Applicants must:

1. Possess a minimum overall grade point average (GPA) of 3.0 on a 4.0 scale.
2. Submit official transcripts from all colleges and universities attended.
3. Submit scores from the Graduate Record Examination (GRE). No minimum GRE score is prescribed, however, verbal and quantitative scores above the 50<sup>th</sup> percentile are considered competitive.
4. Complete any prerequisite courses (where required) with a grade of 3.0 or better. School of Health Professions professional programs require specific undergraduate prerequisites and these courses must be completed by the time the student begins the professional program. *Students entering with a master's degree or higher in an allied health discipline will not be required to complete additional prerequisite courses.*

5. Documentation of certification and/or licensure in an allied health or allied health related discipline (as applicable).
6. Three letters of recommendation from persons who are knowledgeable about the quality of the applicant's scholarly activities and/or work experiences.
7. Acceptable healthcare experience in the professional area of study is required for admission. Prior research experience, especially in a health sciences environment, will also be considered and has the benefit of increasing the candidate's understanding of the biomedical or clinical research process.
8. Transcripts from institutions outside the United States must be submitted in the original language and must be accompanied by an acceptable evaluation agency translation for each course (NACES<sup>®</sup>, WES or ECE). This evaluation should include a listing of all courses in English and a final grade point average calculated on a 4.0 scale.
9. International applicants: Submit Test of English as a Foreign Language (TOEFL) or the International English Testing System (IELTS) scores. At least a score of 84 on the internet based version of the TOEFL or 6.5 on the academic version of the IELTS is required.
  - a. Countries exempted from the TOEFL and/or IELTS requirement: American Samoa, Australia, Bahamas, Barbados, Belize, Canada (except Quebec), Cayman Islands, Dominica, Federated States of Micronesia, Grenada, Guam, Guyana, Jamaica, Liberia, New Zealand, United Kingdom (all), Trinidad-Tobago, and Virgin Islands.
  - b. Additionally, depending on the program you are applying to (please reference the program's specific admissions page), if you have completed a degree at a U.S. institution, you may request a waiver. Please note, a completed degree means that at the time of application you have a transcript that indicates your degree has already been conferred. If you are still enrolled in the program you are not eligible for a waiver.
10. Specific admission requirements may be waived by the GSBS Graduate Faculty Council. Requests for waivers will be addressed on a case-by-case basis, and are to be directed to the appropriate GSBS Dean prior to presentation to the GSBS Graduate Faculty Council

### Admission Factors

Admission is on a competitive basis. The basis for *inviting an applicant for an interview* includes the applicant's academic performance represented by coursework grades, course load, trends, degree of course difficulty and Graduate Record Examination scores. In addition, the review includes consideration of the non-academic qualifications listed below in no order of preference or weight:

1. Professional work experience.
2. Positions of leadership held.
3. Public, professional or community service and/or "volunteer" activities.
4. Communication skills - as demonstrated in the essay and personal interview commitment.
5. Desire to serve in a medically under-served region following graduation.
6. Reference letters or recommendations.
7. Research experience and accomplishments.
8. Understating of the nature and purpose of the PhD (vs. a clinical doctorate).
9. Alignment of the applicant's career goals and the goals of the program.
10. Assessment of the applicant's persistence in working towards, and achieving difficult goals.

## **Background Checks and Drug Testing**

Background checks and a drug screening are required prior to matriculation. Any events that occur after the initial background check that might affect the student's status in the program must be reported to the department immediately. Students are required to comply with additional requests for background checks or drug screening during their course of study. Students are responsible for the cost and fees of any/all required background checks or drug screening testing.

## **Transfer of Credit**

Credit for coursework taken at another institution may be transferred if the student submits a Course Waiver/Substitution Request Form available in the Office of the University Registrar. The same procedure should also be used to request transfer of credit from other schools within the UT Health San Antonio. The transfer of credit is subject to approval by the Committee on Graduate Studies of the program and program director, with review by the deans of the GSBS and SHP.

Transfer of credit for PhD students may be requested to provide evidence on the student's transcript of the completion of courses taken elsewhere which are approved by the Committee on Graduate Studies (1) to satisfy the course requirements for the PhD degree or (2) to be appropriate to the specific course of study of the individual graduate student.

The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) has set a standard that at least 33 percent of credit hours applicable to a graduate or post-baccalaureate professional degree must be earned through instruction offered by the university granting the degree.

**Waiver of Courses:** With the approval of the Committee on Graduate Studies, graduate credit hours from other universities may be accepted in lieu of required courses. In addition, the Committee may waive certain required courses, based on the student's previous graduate course work. These hours will be accepted in the form of credit for the course material rather than by application of credit hours directly to the student's transcript.

## **Essential Job Functions**

The allied health specialization concentration in the program requires students to apply therapeutic and diagnostic allied health techniques and procedures to patients in the clinical environment for research and treatment. The following general essential functions are required of all students enrolled in the PhD in Health Sciences program. Each student is expected to be able to perform these essential functions with reasonable accommodation provided, as needed. Reasonable accommodation is defined as any reasonable change in the environment or in the way activities are usually done that enables an individual with a disability to participate as fully as possible in the academic program. Accommodations may include modification of policies, practices and procedures or the provision of auxiliary aids for communication. Students must not pose a threat to the safety or well-being of patients, other students, staff or themselves. Essential job functions include:

1. Observation: The students must be able to observe demonstrations and exercises related to their health science discipline and related research including the use of simple and complex instruments.
2. Communication: The student must be able to communicate clearly and sensitively with patients and family members. The student must be able to communicate effectively and efficiently with all members of the health care team.
3. Motor: Students must be able to perform tasks related to their health science discipline.
4. Intellectual-Conceptual, Integrative and Quantitative Abilities: These intellectual abilities include measurement calculations, reasoning, analysis and synthesis. Problem solving is a critical skill requiring these intellectual abilities.
5. Behavioral and Interpersonal Attributes: Students must possess the emotional health required for full utilization of intellectual abilities. This includes, but is not limited to, the exercise of good judgment and the prompt completion of all responsibilities attendant to the performance of procedures with maximal attention to safety of self and others in dealing with potentially hazardous equipment and materials. Students must be able to tolerate periods of taxing workloads and function effectively under stress and with unpleasant materials. They must be able to adapt to changing environments, to display flexibility, and learn to function in the face of uncertainties inherent in the clinical situations. Compassion, integrity, concern for others, interpersonal skills, interest and motivation as well as the ability to maintain confidentiality of patient results, are all personal qualities that will be assessed during the education process.
6. Academic Performance: The student must obtain information from in-person and online sources and activities, lectures, laboratory sessions/exercises, audiovisual materials, written materials and web-based materials. Students must take essay and multiple-choice tests, complete papers, deliver presentations and perform required clinical practice or research procedures.

A request for accommodation or modification is not cause for withdrawal of the offer of acceptance. Any student can request accommodations once enrolled in the program. If an accommodation is requested, the department may require additional documentation and information and will follow-up with the student to discuss the specifics of the request and the appropriate plan of action. The program reserves the right to require applicants or students to demonstrate any of these essential functions.

### **Student Diversity**

The PhD program serves a diverse student population including practicing health professionals in Emergency Health Systems, Medical Laboratory Science, Speech-Language Pathology, Health Administration, Physical Therapy, Occupational Therapy, Physician Assistant Studies and Respiratory Care, and students of color and other minority groups reflecting the diversity of the UT Health San Antonio service area.

In keeping with its goal to promote diversity among its student population, the program is committed to attracting and educating students who will help to make the population of health care professionals' representative of the population, including students with disabilities.

## **Students with Disabilities**

UT Health San Antonio ensures that access to its facilities, programs and services are available to students with disabilities. The University provides reasonable accommodations to all students on a nondiscriminatory basis consistent with legal requirements as outlined in the Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973. A reasonable accommodation is a modification or adjustment to an instructional activity, facility, program or service that enables a qualified student with a disability to have an equal opportunity to participate in all University student activities.

In certain instances, the implementation of these policies requires the use of affirmative action initiatives. These are focused on strong recruitment and programming efforts and these recruitment and programming efforts will be continued, consistent with federal, state, and university system guidelines.

In keeping with its goal of promoting diversity through its equal opportunity and affirmative action programs, the program is committed to attracting students who will enable the student body to achieve the educational benefits of diversity, and to provide services to all students, faculty, and other employees on a nondiscriminatory, equitable basis. Discrimination or harassment against any member of the UT Health San Antonio community because of race, color, gender, sexual orientation, religion, national origin, ancestry, age, marital status or parental status, disability as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, or any other category protected by federal or state law is prohibited and will not be tolerated, nor will any person for those reasons be excluded from participation or denied the benefits of any program or activity within UT Health San Antonio .

Students in the Ph.D. program in Health Sciences who request ADA accommodations will work with the GSBS Dean's Office.

## **Student Advisement and Correspondence between Students and Faculty**

1. A schedule of office hours will be noted in each faculty member's course syllabus.
2. Students will be assigned to a faculty advisor during the first semester of first year. Times for student conferences will be announced by e-mail communication.
3. Each student must meet with her/his advisor formally at least once per semester during the academic year. Meetings may be on-line using conferencing software (e.g. Skype, Zoom, WebX, CANVAS Conference). One advisement session will be held during each summer session.

## **Curriculum**

The program curriculum will consist of 12 SCH of education core courses, 16 SCH of research and statistics core courses, 10 SCH of leadership core courses, 9 SCH of professional track/specialization course work and 12 SCH of elective course work. The dissertation requires successful completion of at least 9 SCH of dissertation course hours generally taken over a period of at least one year. Core curriculum required courses are listed below. Course

descriptions are found in **Appendix A**.

**PhD Health Professions Curriculum**

<b>Education Core Courses</b>	<b>12</b>	<b>Professional Tracks **</b>	<b>9</b>
HSCI 7001 Foundations of Education	3	See Professional Sections for Listings.	
HSCI 7002 Curriculum and Instruction	3		
		<b>Elective Courses ***</b> See Elective course listings for possible options. TSCI 5070 Responsible Conduct of Research (2) may be taken as an elective to meet the research ethics requirement.	<b>12</b>
HSCI 7003 Methods and Evaluation	3		
HSCI 7004 Teaching Practicum	3		
<b>Research Core Courses *</b>	<b>16</b>	<b>Independent Study (Variable Credit) ****</b>	<b>VAR</b>
HSCI 7101 Research Design I	3	Independent Study (with approval, may be used to fulfill elective or professional track requirements)	
HSCI 7102 Research Design II	3		
HSCI 7103 Statistics I	3	<b>Dissertation *****</b>	<b>9</b>
HSCI 7104 Statistics II	3	HSCI 7304 Dissertation Research	
HSCI 7105 Grantsmanship or TSCI 6064	2		
HSCI 7106 Research Seminar I	1	<b>Master's Degree Graduate Transfer Credit</b>	<b>30</b>
HSCI 7107 Research Seminar II	1		
<b>Leadership Core Courses *</b>	<b>10</b>		
HSCI 7201 Leadership Theory	3		
HSCI 7202 Issues and Trends in Health Care	3		
HSCI 7203 Ethics in Clinical and Research Settings	1		
		* Courses offered by the GSBS as a part of part of the PhD in nursing and PhD in translational science may be substituted with permission of the COGS.	
HSCI 7204 Management and Supervision	3	** Variable: Minimum 9 SCH	
		*** Elective courses may be taken at the UT Health Science Center or other appropriate institutions, with approval.	
		**** Variable credit with Advisor approval	
		***** Variable: Minimum 9 SCH	

**Total: 98 SCH (or masters plus 68 SCH)**

Projected Schedule of Courses – 7-8 SCH/Semester	Year 1			Year 2			Year 3			Year 4		
	Fall	Spring	Sum	Fall	Spring	Sum	Fall	Spring	Sum	Fall	Spring	Sum
Course Number and Title	Fall	Spring	Sum	Fall	Spring	Sum	Fall	Spring	Sum	Fall	Spring	Sum
HSCI 7201 (3) Leadership Theory	X											
HSCI 7001 (3) Foundations of Education	X											
HSCI 7101 (3) Research Design I		X										
Major Core (3)					X							
HSCI 7102 (3) Research Design II			X									
HSCI 7202 (3) Issues and Trends in Health Care							X					
Major Core (3)							X					
HSCI 7204 (3) Mgmt and Supervision			X									
HSCI 7103 (3) Statistics I		X										
HSCI 7203 (1) Ethics in Clinical and Research Settings					X							
TSCI 5070 (2) Resp. Conduct Research					X							
Major Core (3)									X			
HSCI 7002 (3) Curriculum and Instruction				X								
HSCI 7104 (3) Statistics II				X								
HSCI 7105 (2) Introduction to Grantsmanship						X						
HSCI 7003 (3) Methods and Evaluation								X				
Elective (3-4)						X						
HSCI 7106 (1) Research Seminar I							X					
Elective (3-4)									X			
HSCI 7107 (1) Research Seminar II								X				
Elective (3-4)								X				
HSCI 7004 (3) Teaching Practicum											X	
Elective (3-4)										X		
HSCI 7304 (9) Doctoral Dissertation										X	X	X
<b>Total hours (SCH)</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>5-6</b>	<b>6</b>	<b>7-8</b>	<b>6-7</b>	<b>6-7</b>	<b>6</b>	<b>3</b>
Major Core / Professional Track (9)												
Research and Statistics (16)												
Education (12)												
Leadership (10)												
Elective (12)												



Projected Schedule of Courses – 9-11 SCH/Semester	Year 1			Year 2			Year 3			Year 4		
	Fall	Spring	Sum	Fall	Spring	Sum	Fall	Spring	Sum	Fall	Spring	Sum
Course Number and Title												
HSCI 7201 (3) Leadership Theory	X											
HSCI 7001 (3) Foundations of Education	X											
HSCI 7101 (3) Research Design I		X										
Major Core (3)	X											
HSCI 7102 (3) Research Design II			X									
HSCI 7202 (3) Issues and Trends in Health Care							X					
Major Core (3)		X					X					
HSCI 7204 (3) Mgmt and Supervision			X									
HSCI 7103 (3) Statistics I		X										
HSCI 7203 (1) Ethics in Clinical and Research Settings					X							
TSCI 5070 (2) Resp. Conduct Research					X							
Major Core (3)			X									
HSCI 7002 (3) Curriculum and Instruction				X								
HSCI 7104 (3) Statistics II				X								
HSCI 7105 (2) Introduction to Grantsmanship						X						
HSCI 7003 (3) Methods and Evaluation								X				
Elective (3-4)				X								
HSCI 7106 (1) Research Seminar I						X						
Elective (3-4)					X							
HSCI 7107 (1) Research Seminar II							X					
Elective (3-4)					X							
HSCI 7004 (3) Teaching Practicum							X					
Elective (3-4)						X						
HSCI 7304 (9) Doctoral Dissertation								X	X	X		
<b>Total hours (SCH)</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9-10</b>	<b>9-11</b>	<b>6-7</b>	<b>7</b>	<b>6</b>	<b>3</b>	<b>3</b>		
Major Core / Professional Track (9)												
Research and Statistics (16)												
Education (12)												
Leadership (10)												
Elective (12)												

## Student Learning Outcomes

Student Learning Outcomes for the PhD in Health Sciences have been developed for each major core area and are mapped to individual courses. The four major core areas which all students must complete are: Education (12 SCH), Research and Statistics (16 SCH), Leadership (10 SCH) and Professional Track (9 SCH). The nine hours of professional track credit provides advanced cognate courses in specific allied health sciences. In addition students will take up to 12 hours of elective courses, which will be individualized based on the student's interests and career goals. The 12 hours of electives may include advanced science courses, leadership, measurement and statistics, and research courses that are available at UT Health San Antonio. Elective courses will require approval by the student's major advisor.

Students must complete a minimum of 9 semester credit hours of dissertation, generally over a one-year period (at least two semesters). Because this is a PhD in Health Sciences (vs. a doctoral program in a specific allied health professional area), outcomes for the major core areas are the same for all students for the education, research and statistics and leadership core areas.

### STUDENT LEARNING OUTCOMES

Prior to graduation, all students in the program will demonstrate achievement of the competencies described below in each of the core competency areas of education, research, and leadership. Students will also demonstrate achievement of the required competencies in their individual professional track cognate areas.

Education Core (12 SCH) Courses and course descriptions are found in Appendix A

Upon completion of the program, the student will be able to:

1. Demonstrate enhanced critical thinking and analytical skills related to educational program design, development, implementation, administration and evaluation.
2. Exhibit the capacity for educational leadership within the setting of higher education.
3. Understand learning theory as applied to professional and adult education.
4. Apply learning theory to development and application of teaching methods and specific learning platforms.
5. Integrate learning theory and methods into the curriculum to include program and course design, delivery, administration and evaluation.
6. Integrate the historical, philosophical, social and cultural foundations of curriculum as a field of study with the development and administration of allied health professional training programs.
7. Perform a needs analysis for health science course and program development.
8. Design and implement competency-based health science program curricula.
9. Develop course descriptions, course outlines, syllabi, goals, objectives, content, learning activities and evaluation methods for specific programs and learning audiences.
10. Evaluate health science program curricula using both process and outcomes assessment.
11. Develop and implement specific teaching and learning methods for course content delivery in the classroom, teaching laboratory and clinical or practicum settings.
12. Select and apply appropriate learning platforms for course and program delivery to include traditional lecture-discussion, small group work, projects, and the use of educational technology and web-based instruction.
13. Develop criterion related testing for courses and programs to include the use of both objective and subjective testing methods and evaluation of the cognitive, psychomotor and affective domains.

14. Develop and apply program evaluation to include measurement tools and program revision based on evaluation results.
15. Develop assessment-driven, standards-based instruction for education and training.
16. Work as scholar-practitioners by applying current educational research and theory to lead the development of the health science/allied health sciences.
17. Demonstrate effective teaching and evaluation methods that assure that learning occurs through:
  - a. The development and/or improvement of course syllabi that facilitate assurance of learning.
  - b. Preparation of effective lectures, discussions and presentations using the appropriate venue to support learning.
  - c. Delivery of course topics under the guidance of faculty mentors.
  - d. Evaluation of learning outcomes and feedback to students
  - e. Maintenance of a Teaching Portfolio.

Education Core outcomes 1, 2, 3, 4, 15 and 16 map to HSCI 7001: Foundations of Education.

Education Core outcomes 1, 2, 5, 6, 7, 8, 9, 10, 15 and 16 map to HSCI 7002: Curriculum and Instruction.

Education Core outcomes 1, 2, 11, 12, 13, 14, 15 and 16 map to HSCI 7003: Methods and Evaluation.

Education Core outcomes 1, 2, 4, 5, 8, 9, 11, 12, 13, and 17 map to HSCI 7004: Teaching Practicum.

Research and Statistics (16 SCH) Courses and course descriptions are found in Appendix A

The overall aim of the research core is to enhance the student's knowledge of scientific methods to include how to define the scientific problem, the rationale behind the review of literature, selection of the research design, data analysis, results and discussion. These courses will deepen the student's knowledge and understanding of quantitative and qualitative research methods with a focus on interdisciplinary, collaborative and outcomes research in the health sciences.

Upon completion of the program, the student will be able to:

1. Demonstrate a thorough understanding of research design and methods.
2. Understand and have the ability to interpret and apply basic and advanced research statistical models.
3. Effectively evaluate and critique research reports.
4. Identify knowledge gaps for selected allied health fields, synthesize relevant information, and formulate focused research questions to address these gaps.
5. Identify specific problem areas for research and conduct a thorough review of the literature.
6. Develop and refine specific aims, research questions, and hypotheses based on the review of the literature.
7. Select and apply appropriate research methodology to address specific research questions.
8. Develop appropriate research protocols.
9. Obtain institution review board approval for conducting research studies.
10. Initiate approved research protocols and collect data.
11. Apply appropriate statistical analyses to data collected and interpret the results.
12. Write research reports and present and publish research findings.
13. Engage in collaborative, interdisciplinary research, with a focus on outcomes and evidence-based practice.
14. Conduct research as scholar-practitioners to lead the evolution of practice in professional settings.
15. Seek funding for a collaborative, interdisciplinary research agenda.
16. Address issues in research management including:
  - a. Formation and leadership of multidisciplinary teams.
  - b. Staffing, budgeting, tracking.
  - c. Subject recruitment and retention.

- d. Data quality control and data safety management.
  - e. Funding mechanisms and Grantsmanship.
  - f. Research ethics and regulations.
  - g. Professional quality peer-review, oral and poster presentation, report, grant, and manuscript writing.
17. Conduct investigations that support evidence-based problem solving of direct relevance to their work and career development.
  18. Identify appropriate funding agencies and opportunities
  19. Develop and submit proposals to obtain grant funding.

Research outcomes 1, 3, 7, 8, 13, and 14 map to HSCI 7101: Research Design 1 and HSCI 7102: Research Design II.

Research outcomes 2, 3, 7, 8, and 11 map to HSCI 7103: Statistics I and HSCI 7104: Statistics II

Research outcomes 15, 16, 18, and 19 to HSCI 7105: Introduction to Grantsmanship

Research Outcomes 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17 map to HSCI 7106: Research Seminar 1 and HSCI 7107: Research Seminar 2.

Demonstration of Research Core Competencies is further achieved by passing the Doctoral Qualifying Examination and by successful development, conduct, completion, defense and publication of the dissertation.

Leadership Core (10 SCH) Courses and course descriptions are found in Appendix A

Upon completion of the program, the student will be able to:

1. Describe evidence-based methods for developing and evaluating leadership.
2. Demonstrate leadership development in an interdisciplinary health care environment.
3. Achieve interdisciplinary goals in practice, education, scholarship and service.
4. Practice in an interdisciplinary manner to model collaborative care.
5. Engage in reflective practice for continuous professional growth and improvement.
6. Demonstrate professional and ethical leadership.
7. Demonstrate the capacity for educational leadership within the setting of higher education.
8. Describe current issues and trends in health care and apply these to professional practice and research.

Examples include:

- a. Health care reform
  - b. Health care costs, access and quality
  - c. Interdisciplinary and collaborative health care and health care research
  - d. Evidence-base practice and comparative-effectiveness research
  - e. Health care disparities
  - f. Health care finance
  - g. Workforce issues
  - h. Health promotion and disease prevention
  - i. Management of chronic disease
  - j. Implications of targeted therapy and genetic testing
  - k. Issues in higher education
9. Conduct informed thinking and planning for organizational strategies with appropriate data.
  10. Apply standards of ethical leadership and management.
  11. Work as scholar-practitioners by applying current research and theory to lead the development of the health science/allied health sciences.
  12. Describe the principles of management as they apply to health care organizations and institutions to include planning, organizing, controlling, and directing an operational unit.
  13. Apply motivational theory and conflict management to interpersonal relationships within an organization.

14. Apply principles of management and supervision to the administration of School and university academic programs and departments.
15. Demonstrate an understanding of the governance, organization, finance, and administration of institutions of higher learning.
16. Understand the attributes and skills necessary to lead and manage professional organizations as complex and adaptive systems
17. Engage in critical thinking, analysis, and problem solving that reflects scholarly intellectual standards, incorporation of sound reasoning, and equity and fairness.

Leadership outcomes 1, 2, 3, 4, 5, 6, and 7 map to HSCI 7201 Leadership Theory

Leadership outcomes 1, 2, 3, 4, 5, 6, and 8 map to HSCI 7202: Issues and Trends in Health Care.

Leadership outcomes 5, 6, 9, 10 and 17 map to HSCI 7203: Ethics in Clinical and Research Settings.

Leadership outcomes 9, 10, 11, 12, 13, 14, 15, and 16 map to HSCI 7204: Management and Supervision.

### Professional Track (9 SCH)

Professional track cognate courses in the various professional areas in which students hold certification or licensure are provided with associated learning outcomes as follows:

Upon completion of the program, the student will demonstrate:

1. An increased knowledge base in the professional specialty area.
2. Synthesis of an interprofessional perspective related to everyday activities and application of these perspectives as well as knowledge generated in health science to promote evidence-based practice.
3. Presentation of research related to the professional track at state and national meetings.
4. Teaching allied health-health science students in undergraduate and/or graduate programs.
5. Initiation and participation in communities of practice and other collaborations with professionals and community members to mobilize resources to best meet learner needs and enhance professional growth.
6. Development of expertise in ways that cross conventional disciplinary lines.
7. Identification of professional venues including conferences and journals for publication and dissemination of results.
8. Presentation of research findings to peers during organized extracurricular research seminars.
9. Preparation of research manuscripts suitable for submission for publication.
10. Maintenance of a Research Portfolio.
11. Use of evidence-based practice as part of daily clinical decision making.

**Courses and course descriptions for professional track course are found in Appendix A.**

#### Medical Laboratory Sciences

MLSC 6003 Evidence-based Medicine in Medical Laboratory Science maps to outcomes 1, 2, 5, 6 and 11

MLSC 5013 Medical Toxicology/Therapeutic Drug Monitoring maps to outcomes 1, 2, 5, 6 and 11

MLSC 6000 Advanced Diagnostic Microbiology maps to outcomes 1, 2, 5, 6 and 11

MLSC 7091 Selected Topics in Medical Laboratory Sciences maps to outcomes 1, 2, 5, 6 and 11

MLSC 7097 Research in Medical Laboratory Science maps to outcomes 1, 2, 3, 4, 5, 7, 8, 9, 10 and 11

#### Occupational Therapy

OCCT 7091 Selected Topics in Occupational Therapy maps to outcomes 1, 2, 5, 6 and 11

OCCT 7010 Advanced Occupational Therapy Theory and Practice maps to outcomes 1, 2, 4, 5, 6 and 11

OCCT 7014 Advanced Evidence-based Practice in Occupational Therapy maps to outcomes 1, 2, 4, 5, 6 and 11

OCCT 7125 Population Health and Occupational Therapy maps to outcomes 1, 2, 4, 5, 6 and 11

OCCT 7097 Research in Rehabilitation Sciences maps to outcomes 1, 2, 3, 4, 5, 7, 8, 9, 10 and 11

HSCI 7004 Teaching Practicum maps to outcome 4

HSCI 7106 and 7107, Research Seminar and HSCI 7304 Dissertation map to outcomes 1, 2, 3, 6, 7, 8, 9, 10 and 11

### **Physical Therapy**

PHYT 7097 Research in Rehabilitation Sciences map to outcomes 1, 2, 3, 4, 5, 7, 8, 9, 10 and 11

PHYT 7801 Advanced Studies in Physical Therapy map to outcomes 1, 2, 3, 5, 6 and 11

PHYT 7802 Practicum in Clinical Practice map to outcomes 1, 2, 5, 6, and 11

### **Physician Assistant Studies**

PHAS 7010 Current Issues in Physician Assistant Education maps to outcomes 1, 2, 5, 6 and 11

PHAS 7020 Physician Assistant Leadership and Governance maps to outcomes 1, 2, 5, 6, 7, 8, 9, 10 and 11

PHAS 7030 Research Topics in Physician Assistant Clinical and Professional Practice maps to outcomes 1, 2, 4, 6, 10 and 11

PHAS 7091 Selected Topics in Physician Assistant Studies maps to outcomes 1, 2, 3, 5, 6 and 11

HSCI 7004 Teaching Practicum maps to outcome 4

HSCI 7106 and 7107, Research Seminar and HSCI 7304 Dissertation map to outcomes 1, 2, 3, 6, 7, 8, 9, 10 and 11

### **Respiratory Care**

RESC 7091 Selected Topics in Cardiopulmonary Sciences maps to outcomes 1, 2, 5, 6 and 11

RESC 5015 Education in Respiratory Care maps to outcomes 1, 2, 5, 6 and 11

RESC 5023 Advanced Cardiopulmonary Diagnostics and Pulmonary Function Testing maps to outcomes 1, 2, 5, 6 and 11

RESC 7042 Advanced Clinical Practice maps to outcomes 1, 2, 5, 6 and 11

HSCI 7004 Teaching Practicum maps to outcome 4

HSCI 7106 and 7107, Research Seminar and HSCI 7304 Dissertation map to outcomes 1, 2, 3, 6, 7, 8, 9, 10 and 11

RESC 7097 Research in Cardiopulmonary Science maps to outcomes 1, 2, 3, 6, 7, 8, 9, 10 and 11

### **Speech Language Pathology**

MSLP 5007 Motor Speech Disorders maps to outcomes 1, 2, 5, 6 and 11

MSLP 5009 Dysphagia in Adults and Children maps to outcomes 1, 2, 5, 6 and 11

MSLP 5012 Cognition and Communicative Disorders maps to outcomes 1, 2, 5, 6 and 11

MSLP 7091 Advanced Topics in Communication Sciences and Disorders 1, 2, 5, 6 and 11

### **Selected Topics in Health Sciences**

HSCI 7301 Education maps to outcomes 1, 2, 5, 6 and 11

HSCI 7302 Research maps to outcomes 1, 2, 5, 6 and 11

HSCI 7303 Clinical Delivery maps to outcomes 1, 2, 5, 6 and 11

HSCI 7091 Selected Topics in Health Sciences maps to outcomes 1, 2, 5, 6 and 11

### **Electives (up to 12 SCH):**

Elective courses should advance the student's knowledge and competency with respect to research, statistics, education, leadership, biomedical sciences, clinical science and/or community and population health. Please note elective course offerings are subject to change – please consult the current university catalog and your major advisor. Electives may also be taken, with prior approval at other regionally accredited colleges and universities. Please consult with your major advisor to obtain approval to take courses offered elsewhere. Elective course work should provide:

1. An enhanced scientific knowledge base for a better understanding of clinical systems and procedures, disease pathophysiology and management, care plans and treatment protocols.
2. Additional understanding and competencies related to big data analytics; research methodology; bench, clinical, or translational research; and/or advanced statistical methods.

3. Exploration of areas of scientific interest by taking science cognates in the various medical, health care systems and basic science departments of the university.
4. Exploration of areas related to interprofessional/ interdisciplinary health care delivery, quality, health outcomes and service provision.
5. Advanced course work in the areas of education, management, leadership and health care systems.
6. TSCI 5070 (2.0 SCH) Responsible Conduct of Research may be taken as an elective course to meet the GSBS research ethics requirement.

Selected elective courses and course descriptions for electives are found in **Appendix A**.

### **Interdisciplinary Courses**

TSCI 5070 Responsible Conduct of Research

INTD 5001/3001 International Elective maps to outcomes 1, 2, 5, 6 and 11

INTD 5030/3030 Clinical Foundations maps to outcomes 1, 2, 5, 6 and 11

INTD 5058/3058 Hospice and Palliative Medicine maps to outcomes 1, 2, 5, 6 and 11

INTD 5007/4007 Interprofessional Community Service Learning maps to outcomes 1, 2, 5, 6 and 11

INTD 5008/4008 Interprofessional Care in HIV 1 maps to outcomes 1, 2, 5, 6 and 11

INTD 5009/4009 Interprofessional Care in HIV 2 maps to outcomes 1, 2, 5, 6 and 11

INTD 5018/4018 Independent Elective in Ethics maps to outcomes 1, 2, 5, 6 and 11

INTD 5019/4019 Clinical Ethics maps to outcomes 1, 2, 5, 6 and 11

INTD 5025/4025 Healthcare Practice and Policy Elective maps to outcomes 1, 2, 5, 6 and 11

INTD5030/4030 Preparing for Global Health Work maps to outcomes 1, 2, 5, 6 and 11

INTD 5045/4045 Patient Notes- Enrichment Elective maps to outcomes 1, 2, 5, 6 and 11

INTD 5048/4048 Art Rounds maps to outcomes 1, 2, 5, 6 and 11

INTD 5048/4058 Hospice and Palliative Medicine Elective maps to outcomes 1, 2, 5, 6 and 11

INTD 5005 Core Course 1: Biochemistry maps to outcomes 1, 2, 5, 6 and 11

INTD 5007 Advanced Cellular and Molecular Biology maps to outcomes 1, 2, 5, 6 and 11

INTD 5023 Research Ethics maps to outcomes 1, 2, 5, 6 and 11

INTD 5030 Introduction to Patient Care maps to outcomes 1, 2, 5, 6 and 11

INTD 5035 University Teaching Excellence Course maps to outcomes 1, 2, 5, 6 and 11

INTD 5040 Fundamentals of Neuroscience1: Molecular, Cellular, & Developmental Neuroscience maps to outcomes 1, 2, 5, 6 and 11

INTD 5043 Fundamentals of Neuroscience 2: Systems Neuroscience maps to outcomes 1, 2, 5, 6 and 11

INTD 5046 Metanalysis in Cognitive Neuroimaging maps to outcomes 1, 2, 5, 6 and 11

INTD 5047 Neuroanatomy maps to outcomes 1, 2, 5, 6 and 11

INTD 5064 Applied Statistics for Health Care Practitioners maps to outcomes 1, 2, 5, 6 and 11

INTD 5066 Laughter is the Best Medicine: An Interdisciplinary Elective about Humor, Healing, and Healthcare maps to outcomes 1, 2, 5, 6 and 11

INTD 5067 Introduction to Bioinformatics and Computational Biology maps to outcomes 1, 2, 5, 6 and 11

INTD 5074 Topics in Translational Medical Product Development maps to outcomes 1, 2, 5, 6 and 11

INTD 5075 Complementary Healthcare for the Clinician maps to outcomes 1, 2, 5, 6 and 11

INTD 5076 Introduction to Informatics maps to outcomes 1, 2, 5, 6 and 11

INTD 5081 Topics in Cardiovascular Research maps to outcomes 1, 2, 5, 6 and 11

INTD 5082 Responsible Conduct of Research maps to outcomes 1, 2, 5, 6 and 11

INTD 6002 Ethics in Research maps to outcomes 1, 2, 5, 6 and 11

INTD 6007 Advanced Cell Biology maps to outcomes 1, 2, 5, 6 and 11

INTD 6008 Mitochondria & Apoptosis maps to outcomes 1, 2, 5, 6 and 11

INTD 6009 Advanced Molecular Biology maps to outcomes 1, 2, 5, 6 and 11

INTD 6011 Introduction to Science of Teaching maps to outcomes 1, 2, 5, 6 and 11

INTD 6019 Pharmacotherapeutics maps to outcomes 1, 2, 5, 6 and 11

INTD 6033 Cell Signaling Mechanisms maps to outcomes 1, 2, 5, 6 and 11

INTD 6043 Structure & Function of Membrane Proteins maps to outcomes 1, 2, 5, 6 and 11

INTD 6070 Teaching Excellence and Academic Skills (Texas) maps to outcomes 1, 2, 5, 6 and 11

INTD 7003 Elective in International Medicine maps to outcomes 1, 2, 5, 6 and 11

INTD 7007 Literature and Medicine maps to outcomes 1, 2, 5, 6 and 11

INTD 7074 Topics in Translational Medical Product Development maps to outcomes 1, 2, 5, 6 and 11

### **Cellular & Structural Biology**

CSBL 3005 Advanced Anatomy maps to outcomes 1, 2, 5, 6 and 11  
CSBL 4001 Anatomy of the Newborn maps to outcomes 1, 2, 5, 6 and 11  
CSBL 5007 Methods in Cell Biology maps to outcomes 1, 2, 5, 6 and 11  
CSBL 5022 Inter-professional Human Gross Anatomy maps to outcomes 1, 2, 5, 6 and 11  
CSBL 5023 Development maps to outcomes 1, 2, 5, 6 and 11  
CSBL 5024 Genomics maps to outcomes 1, 2, 5, 6 and 11  
CSBL 5077 Scientific Writing maps to outcomes 1, 2, 5, 6 and 11  
CSBL 5095 Experimental Design and Data Analysis maps to outcomes 1, 2, 5, 6 and 11  
CSBL 6049 Cellular and Molecular Mechanisms of Aging maps to outcomes 1, 2, 5, 6 and 11  
CSBL 6050 Aging and Longevity Mechanisms maps to outcomes 1, 2, 5, 6 and 11  
CSBL 6058 Neurobiology of Aging maps to outcomes 1, 2, 5, 6 and 11  
CSBL 6059 Stem Cells & Regenerative Medicine maps to outcomes 1, 2, 5, 6 and 11  
CSBL 6068 Cancer Biology Core 1 maps to outcomes 1, 2, 5, 6 and 11  
CSBL 6069 Cancer Biology Core 2 maps to outcomes 1, 2, 5, 6 and 11  
CSBL 6165 Medical Genetics maps to outcomes 1, 2, 5, 6 and 11  
CSBL 7014 Anatomy 1 maps to outcomes 1, 2, 5, 6 and 11  
CSBL 8010 Anatomy 2 maps to outcomes 1, 2, 5, 6 and 11

### **Nursing**

NURS 5310 Organizational Systems and Administrative Strategies maps to outcomes 1, 2, 5, 6 and 11  
NURS 5318 Nursing and Health Systems Management 1 maps to outcomes 1, 2, 5, 6 and 11  
NURS 5338 Advanced Pathophysiology maps to outcomes 1, 2, 5, 6 and 11  
NURS 5339 Leadership for Quality, Safety and Health Policy maps to outcomes 1, 2, 5, 6 and 11  
NURS 5356 Financial and Economic Evidence In Health Care maps to outcomes 1, 2, 5, 6 and 11  
NURS 6101 Advanced Mental Health Concepts: Clinical Applications maps to outcomes 1, 2, 5, 6 and 11  
NURS 6132 Population State of the Science maps to outcomes 1, 2, 5, 6 and 11  
NURS 6210 Advanced Health Assessment and Clinical Reasoning maps to outcomes 1, 2, 5, 6 and 11  
NURS 6220 Program Planning and Evaluation: Practicum maps to outcomes 1, 2, 5, 6 and 11  
NURS 6250 Advanced Health Promotion, Health Protection, and Disease Prevention maps to outcomes 1, 2, 5, 6 and 11  
NURS 6315 Informatics & Health Care Technologies maps to outcomes 1, 2, 5, 6 and 11  
NURS 6317 Healthcare Information Systems and Patient Care Technology maps to outcomes 1, 2, 5, 6 and 11  
NURS 6331 Advanced Financial Management maps to outcomes 1, 2, 5, 6 and 11  
NURS 6353 Transforming Complex Healthcare Systems for Quality and Safety maps to outcomes 1, 2, 5, 6 and 11  
NURS 6380 Fundamentals of Epidemiology maps to outcomes 1, 2, 5, 6 and 11  
NURS 7226 Ethics of Nursing Science maps to outcomes 1, 2, 5, 6 and 11  
NURS 7301 Methods For Evidence-Based Practice (EBD) Translational Science 1 maps to outcomes 1, 2, 5, 6 and 11  
NURS 7314 Nursing and Health Systems Administration maps to outcomes 1, 2, 5, 6 and 11  
NURS 7316 Statistical Analysis for Nursing Science maps to outcomes 1, 2, 5, 6 and 11  
NURS 7321 Statistical Analysis for Quality Improvement and Health Delivery Systems maps to outcomes 1, 2, 5, 6 and 11  
NURS 7322 Healthcare Policy Analysis and Advocacy maps to outcomes 1, 2, 5, 6 and 11  
NURS 7323 Design and Analysis for Evidence-Based Practice (EBP) Translational Science 2 maps to outcomes 1, 2, 5, 6 and 11  
NURS 7324 Healthcare Economics and Policy maps to outcomes 1, 2, 5, 6 and 11  
NURS 7373 Nursing: Quantitative Research Methods 2 maps to outcomes 1, 2, 5, 6 and 11  
NURS 7374 Nursing-Content & Practice: Quantitative Research Methodology 1 maps to outcomes 1, 2, 5, 6 and 11  
NURS 7375 Regression Models for Nursing Science maps to outcomes 1, 2, 5, 6 and 11  
NURS 7377 Mixed Methods for Clinical Nurse Scientists maps to outcomes 1, 2, 5, 6 and 11  
NURS 7380 Qualitative Inquiry for Clinical Nursing Research maps to outcomes 1, 2, 5, 6 and 11  
NURS 7382 Structural Equation Models for Nursing Science maps to outcomes 1, 2, 5, 6 and 11  
NURS 7383 Qualitative Methods 2: Application in Nursing Science maps to outcomes 1, 2, 5, 6 and 11

### **Physiology**

PHYL 5042 Cardiovascular Physiology maps to outcomes 1, 2, 5, 6 and 11  
PHYL 5043 Respiratory & Renal Physiology maps to outcomes 1, 2, 5, 6 and 11

### **Clinical Investigation and Translational Science (TSCI)**



TSCI 5070 Responsible Conduct of Patient-Oriented Clinical Research maps to outcomes 1, 2, 5, 6 and 11  
TSCI 5071 Patient-Oriented Clinical Research Methods maps to outcomes 1, 2, 5, 6 and 11  
TSCI 5072 Patient-Oriented Clinical Research Biostatistics maps to outcomes 1, 2, 5, 6 and 11  
TSCI 5074 Data Management, Quality Control and Regulatory Issues maps to outcomes 1, 2, 5, 6 and 11  
TSCI 5075 Scientific Communication maps to outcomes 1, 2, 5, 6 and 11

### **Translational Science (MEDI)**

MEDI 5070 Responsible Conduct of Patient-Oriented Clinical Research maps to outcomes 1, 2, 5, 6 and 11  
MEDI 5071 Patient-Oriented Clinical Research Methods 1 maps to outcomes 1, 2, 5, 6 and 11  
MEDI 5072 Patient-Oriented Clinical Research Biostatistics 1 maps to outcomes 1, 2, 5, 6 and 11  
MEDI 5074 Data Management, Quality Control, and Regulatory Issues maps to outcomes 1, 2, 5, 6 and 11  
MEDI 5075 Scientific Communication maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6060 Patient-Oriented Clinical Research Methods 2 maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6061 Patient-Oriented Clinical Research Biostatistics 2 maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6064 Grantsmanship and Peer Review maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6065 Health Services Research 2 maps to outcomes 1, 2, 5, 6, 7 and 11  
MEDI 6066 Instrument Development and Validation maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6067 Genetics and Genetic Epidemiology maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6068 Cross-Cultural Adaptation of Research Instruments maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6100 Practicum in Institutional Care and Animal Use Committee (IACUC) Procedures maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6101 Topics in Translational Science maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6102 Practicum in Institutional Review Board (IRB) Procedures maps to outcomes 1, 2, 5, 6 and 11  
MEDI 6103 Selected Topics in Advanced Research Ethics maps to outcomes 1, 2, 5, 6 and 11

### **Ethics Course Requirement**

All GSBS doctoral students must take the course TSCI 5070 Responsible Conduct of Research or its equivalent, as a requirement for graduation.

### **Faculty Advisor and Research Mentor**

Upon acceptance into the program, each doctoral student will be assigned a *major advisor*<sup>1</sup>. The student's major advisor serves as a counselor on academic matters and assists the student in development and approval of their individualized program plan. The program plan should include courses to be taken each semester, proposed elective and professional track course work and projected timeline for completion. The student's major advisor should also assist the student in preliminary identification of their research area of interest, in order to better advise the student with respect to elective and specialty track coursework. Program plans must be approved by the major advisor, program director, and submitted to the COGS for review and approval. In some cases, the program director may serve as a student's major advisor.

The major advisor then monitors the student's progress in successfully completing the program course requirements and *comprehensive qualifying examination*. The major advisor may also assist the student in further clarifying the research area of interest as he or she completes their coursework.

Beginning in the first year, the student is expected to gain experience in preparation for research. This activity is intended to lead to the definition of research interests and to the selection of a *research mentor* and *dissertation supervisory committee*<sup>2</sup>. The student's research mentor may

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<sup>1</sup> To avoid potential conflicts of commitment, should a student also be an employee of UT Health San Antonio, both the major advisor and doctoral student must complete an academic program management plan to mitigate conflicts of commitment. The academic program management plan will be reviewed and approved by the GSBS Dean's Office and remain part of the student's program record.

<sup>2</sup> Once a research mentor and dissertation supervisory committee are selected, the process to avoid potential conflicts of commitment must be

have served as the student's major advisor; however, this is not necessarily the case. The student's research mentor will assist the student in identifying their dissertation topic, proposed members of the dissertation committee and will usually include development of a research concept paper and preliminary review of the literature. This is followed by completion of, and

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followed, as described in the above footnote.

successful defense of the *dissertation research prospectus* and *dissertation*, under the supervision of the student's dissertation supervisory committee. In summary, the research mentor guides the student through the steps necessary for successful dissertation completion (see also below).

All PhD students are required to complete a *Compact and Milestones Agreement*. The Compact provides a set of guidelines to assist in the development of a positive mentoring relationship between the student and the research supervising professor (i.e. research mentor). The Milestones Agreement outlines the requirements students must fulfill to earn their PhD degree. The Sequential Procedures for completion of the Doctor of Philosophy degree are located in Appendix B.

### **Qualifying Examination**

The PhD student is required to demonstrate intellectual command of the subject area of his or her graduate program and capability to carry out independent and original investigation in the area. Following completion of the majority of the required coursework for the degree, students must successfully complete a comprehensive written Qualifying Examination on fundamental principles related to the health professions (aka "Comps"). This examination will include sections covering core competencies and associated course work for education, leadership, research and statistics as well as the chosen area of specialization. The examination typically devotes one-half day (3-4 hours) to each competency area for a total of approximately two full days. Normally, the Qualifying Examination is given at the end of the last semester of the student's regular academic coursework, or shortly thereafter. The Qualifying Examination process will be overseen by the program's Committee on Graduate Studies (COGS), which may serve as the student's Qualifying Examination Committee (QEC) with the addition of one member who is not graduate faculty of the student's program. As an alternative, the COGS can approve a QEC consisting of at least four members of the faculty (including one member who is not graduate faculty of the student's program) to serve in this capacity. The QEC should be chaired by the student's major advisor.

### **Dissertation**

The PhD program is intended to advance the science and practice of the allied health sciences by providing a link between the sciences, clinical research and practice. By incorporating a required research dissertation, the program will increase knowledge within the disciplines, provide for interdisciplinary collaboration, and help train future faculty for the field. The PhD degree demonstrates the capability of independent research and recognizes a unique contribution to scientific knowledge.

All doctoral students must successfully complete a minimum of 9 SCH of dissertation credits as a part of degree completion requirements. The dissertation is completed through faculty-guided independent research. The dissertation must be original and cannot have been used to meet the requirement of any other degree, either at UT Health San Antonio or any other university. Upon entering candidacy, each student must register for at least three (3) dissertation credit hours per semester.

During the first and second year of the program, the student begins work to select a research project in collaboration with his or her major advisor and mentor. The research project should be

theory-based and designed to advance knowledge and practice in the health professions. The project may focus on clinical outcomes research, community-based research, translational research, or bench science. Students may also choose projects related to education, leadership, or workforce development. The student and mentor then select a Dissertation Supervisory Committee (DSC) of the faculty to guide the student's research activities, and to provide feedback and guidance to the student to ensure progression towards his or her degree in a timely manner. The student's DSC must be approved by the program Committee on Graduate Studies (COGS).

As described above, following completion of the majority of the required coursework for the degree, students must successfully complete a comprehensive written Qualifying Examination on fundamental principles related to the health professions. After successfully passing the comprehensive written Qualifying Examination, students must complete a *dissertation research prospectus*. Often, prior to completing the prospectus, the student will develop a *concept paper* (problem, purpose, research questions/hypotheses, methodology) under the guidance of their mentor and members of their Dissertation Supervisory Committee.

The student will then complete and successfully defend their *dissertation research prospectus* as certified by their Dissertation Supervisory Committee (DSC). The DSC makes recommendations to the program Committee on Graduate Studies (COGS) with respect to successful defense of the dissertation prospectus and admission to *candidacy*.

Following successful defense of the dissertation research prospectus, and approval by the COGS, the student will enter candidacy. Admission to candidacy is based on the recommendation by the Committee on Graduate Studies that the student be admitted to candidacy for the Doctor of Philosophy degree and requires the following:

- a. Satisfactory completion of all required courses; in exceptional cases, permission to proceed without having completed all required courses can be granted by the Dean of the GSBS.
- b. Cumulative grade point average of at least 3.0 in all coursework undertaken since matriculation in the program.
- c. Report by the Qualifying Examination Committee that the student has passed the examination.
- d. Report by the student's research advisor and other graduate faculty members, as appropriate, that the student has clearly evidenced the potential for productive and independent investigation.

For the remainder of graduate training, degree candidates will concentrate on their dissertation research projects under the direction of their mentor/research advisor and DSC. As noted, the DSC approves the proposed research project and determines when the student has successfully completed his or her dissertation. Upon completion of the candidate's research project, a successful oral defense of the dissertation is required. The DSC then recommends approval or denial of the degree to the program's Committee on Graduate Studies (COGS).

## Dissertation Prospectus Guidelines

Students may begin the process of developing their dissertation proposal or prospectus by writing a brief *concept paper*. The concept paper is used as a tool for the student to work with his or her proposed research advisor or mentor (and prospective dissertation committee members) to clarify the direction for the student's dissertation research. The concept paper typically includes the following sections:

1. Problem
2. Purpose
3. Background and significance
4. Research questions, hypotheses and/or specific aims
5. Proposed methodology

With the permission of his or her mentor/research advisor and the program director, the student may choose one of two formats for their *dissertation prospectus* (also known as dissertation proposal).

1. **Traditional Format.** The traditional dissertation format will consist of the following sections:

- a. Chapter 1: Introduction
  - i. Background and Significance
  - ii. Statement of the Problem
  - iii. Purpose of the Study
  - iv. Research Questions
  - v. Statement of the Null Hypotheses
  - vi. Assumptions
  - vii. Limitations
  - viii. Delimitations
  - ix. Definitions
  - x. Organization of the Remainder of the Study
- b. Chapter 2: Review of the Literature
- c. Chapter 3: Methods and Procedures
  - i. Population and Sample
  - ii. Instrumentation
  - iii. Collection of the Data
  - iv. Research Hypotheses
  - v. Analysis of the Data
  - vi. Pilot Study Results (if available)

2. **Grant Format.** For the grant format, the dissertation prospectus will be written using the grants.gov NIH R-series format OR the NIH F-series format if a fellowship is sought (see: <https://grants.nih.gov/grants/how-to-apply-application-guide/forms-f/fellowship-forms-f.pdf>) Forms for the R21 grant format may be obtained from the NIH website: <https://grants.nih.gov/grants/funding/r21.htm> Any modifications to this format must be discussed and approved by the student's advisor.

Face page

Description, Performance Sites, Key Personnel, Other Significant Contributors

- Table of Contents
- Detailed Budget for First Year (Modular Budget)
- Budget for Entire Proposed Period
- Biographical Sketches of student PI, dissertation committee chair, members, consultants and other pertinent staff
- Resources
- Research Plan (**A-D must be limited to 15 single-spaced pages**)
  - A. Problem Statement/Specific Aims
  - B. Background and Significance
  - C. Preliminary Studies
  - D. Research Design and Methods
  - E. Human Subjects Research
    - Protection of Human Subjects
    - Data Safety Monitoring Plan
    - Inclusion of Women and Minorities
    - Inclusion of Children
  - F. Vertebrate Animals
  - G. Literature Cited
  - J. Letters of Support

### **Dissertation Format Guidelines**

The student, with permission of his or her mentor and the program director, may choose one of two dissertation formats as described below.

1. **Traditional Chapter Format.** The traditional dissertation format will consist of the following sections:

- a. Front matter (e.g., acceptance, authors statement, notice to borrowers, vita, abstract, title page, acknowledgments, table of contents, list of tables, abbreviations)
- b. Chapter 1: Introduction
  - i. Background and Significance
  - ii. Statement of the Problem
  - iii. Purpose of the Study
  - iv. Research Questions
  - v. Statement of the Null Hypotheses
  - vi. Assumptions
  - vii. Limitations
  - viii. Delimitations
  - ix. Definitions
  - x. Organization of the Remainder of the Study
- c. Chapter 2: Review of the Literature
- d. Chapter 3: Methods and Procedures
  - i. Population and Sample
  - ii. Instrumentation
  - iii. Collection of the Data
  - iv. Research Hypotheses
  - v. Analysis of the Data
- e. Chapter 4: Presentation of the Results
  - i. Introduction and Organization of the Chapter

- ii. Overview of the Statistical Results
- iii. Research Question One
- iv. Research Hypothesis One
- v. Research Hypothesis Two
- vi. Research Hypothesis Three, etc.
- vii. Other Findings of Interest
- viii. Summary of the Results
- f. Chapter 5: Summary, Conclusions and Recommendations
  - i. Summary
  - ii. Discussion
  - iii. Conclusions
  - iv. Recommendations

References

Appendixes

2. . **Manuscript Format.** With the permission of the student's major advisor/mentor and program director, the student may use the manuscript format for the dissertation. This format consists of a two or more manuscript-length papers written over the course of the program, and as a part of the completion of their dissertation research. The content of these manuscripts must have a cohesive character that documents the science of developing and completing the students research program. Manuscripts will be developed and submitted/resubmitted for publication over the latter portion of the student's PhD program.

It is suggested that manuscripts focus on the following topics and should be written at approximately the following time points during the course of the PhD program:

- a. **During/upon completion of the theory and research sequences (minimum of one paper):**
  - i) Concept development/analysis paper
  - ii) Integrated literature review (e.g., systematic review or meta-analysis)\*
  - iii) Methodological issues paper
- b. **During/upon completion of the Dissertation Research hours (minimum of one paper):**
  - i) Dissertation research methodological paper
  - ii) Dissertation research clinical implications paper
  - iii) Results of the Dissertation Research\*

For example, the integrated literature review (e.g., systematic review or meta-analysis) should focus on the planned dissertation research and should be completed in preparation for development of the student's research plan.

\* required papers

## **Publishing Guidelines**

Regardless of the discretion format chosen, students should complete and submit at least one paper for publication in a peer-reviewed (refereed) journal based on their research findings prior to degree conferral. It is considered to be a professional courtesy for students to invite their advisor to be co-author on any dissertation research that is published.

## **Registration for Dissertation**

Students in PhD programs may register for the Dissertation course XXXX 7099 where XXXX represents the School of Health Professions course work (HSC). Registration for Dissertation is only permitted after the following three actions have been taken:

1. Approval of admission to candidacy for the PhD degree by the Dean of the GSBS) or designee;
2. Approval of the dissertation research proposal by the Committee on Graduate Studies of the program and the Deans of the GSBS or designee;
3. Approval of the membership of the candidate's Supervising Committee by the Committee on Graduate Studies of the program and the Dean of the GSBS or designee.

## **Registration for Final Term**

A candidate for the PhD degree must register for the Dissertation course for at least two terms. It is a requirement that a student be registered for the semester in which he or she graduates.

## **Final Credit Hours**

A student in his/her final semester registering only for thesis or dissertation course may register for “final hours”. A PhD student must register for a minimum of 3 semester credit hours. When a student declares “final hours” for a semester, the student shall be considered enrolled in a full-time course load for that semester. The student pays tuition based upon the number of credit hour for which he/she registers.

Because of requirements dictated by certain types of visas, international students may not be eligible to take final credit hours. International students must consult with their COGS Chair and the Office of International Services prior to registering for final hours.

A student may register for final credit hours only once during his/her degree program. The “Request for Designation of Final Hours” form is available in the Office of the University Registrar or on their website (<http://students.uthscsa.edu/registrar/2013/03/forms/>) and it requires the signature approval of the program COGS Chair.

## **Advancement, Probation, and Dismissal**

Decisions about advancement, probation, suspension and dismissal will be made on the basis of academic performance and professional behaviors. Academic standards for advancement in the program are determined by the Committee on Graduate Studies. Failure to meet the academic and professional standards may result in probation, suspension or dismissal from the program.



Continuation in the program is dependent on maintenance of a minimum cumulative grade point average of 3.0. A student whose cumulative GPA falls below the minimum may be subject to academic probation. All decisions concerning probation or dismissal will be based on recommendations from the Committee on Graduate Studies and approval of the Dean of the GSBS. The committee may recommend (1) academic probation; (2) repetition of a course when next offered; (3) suspension with repetition of the course when next offered; (4) repetition of the year or semester; or (5) dismissal.

In health professions education, professionalism is a required academic standard. Students who do not adhere to professional conduct standards may be subject to probation, suspension or dismissal from the program. Other standards and policies may be set forth by the faculty as described in their course syllabi. Professional behavior and ethics standards from professional organizations or accreditation bodies may also be applied.

Students may be dismissed, suspended, or refused readmission at any time if circumstances of a legal, moral, health, social, or academic nature are considered to justify such action.

### **Progression Summary**

The expected progression through the program is outlined below:

1. Application and acceptance into the program, including completion of any provisional acceptance requirements (e.g., GRE scores, criminal background checks, transcripts).
2. Assignment of major advisor and completion and approval of program plan which lists core courses, specialization courses, electives, course sequencing and timeline for completion.
3. Enrollment and satisfactory completion of required core, specialization and elective courses.
4. Selection and approval of a dissertation research mentor and development and approval of a preliminary dissertation research proposal or concept paper.
5. Selection and approval of a dissertation research committee and development and formal defense of a formal dissertation prospectus.
6. Dissertation research collection, analysis and written draft dissertation.
7. Formal dissertation defense and acceptance.
8. Award of the PhD in Health Sciences.

*Note: Items above provide a summary outline only and students must comply with all program requirements as outlined in the Program Handbook, GSBS catalog, GSBS Policies and Procedures and Bylaws.*

## **Readmission Procedure**

A student who it is dismissed from the program may reapply for readmission and is subject to the same requirements, procedures, and acceptance considerations that applies to first-time applicants, as described in the current catalog.

## **Conduct and Ethics**

The Graduate School of Biomedical Sciences and the School of Health Professions expect all students to exhibit the highest standards of conduct, honesty, and professionalism.

Irresponsible, unprofessional, or unethical behavior may result in disciplinary action, which may include probation, suspension or dismissal from the program. In the event that clinical rotations are incorporated within the student's program of study for research purposes or other training purposes, all clinical regulations are to be followed by students when undergoing any clinical training in a facility.

## **Academic Integrity**

Students are expected to be above reproach in all professional and academic activities. Policies on academic dishonesty and integrity will be strictly enforced; students who fail to conform to standards of academic integrity and scholastic honesty are subject to disciplinary action.

Academic dishonesty includes, but is not limited to, cheating on examinations or assignments, plagiarism, falsifying data or results, presenting another person's work as one's own without giving proper credit or citation, knowingly recording information in the research or medical record which is incorrect or inaccurate or providing inaccurate or misleading information in writing or orally to faculty, mentors, preceptors, research personnel or medical personnel caring for patients. Violations of academic integrity standards may result in severe penalties including probation, suspension or dismissal from the university. Academic dishonesty is a form of unprofessional conduct and as such, allegations of academic dishonesty will be reviewed by the program's Committee on Graduate Studies. Any student found to be cheating on an examination may receive a "0" for the examination and will be subject to formal disciplinary action, which may include probation, suspension or dismissal from the program. Failure to report incidents involving academic dishonesty on the part of another student will be considered unprofessional conduct and may also result in disciplinary action. To avoid charges of academic dishonesty, consult with your major advisor, program director and course director(s) about expectations.

## **Harassment Policies and Procedures**

The Policies and Procedures on Sexual and Other Harassment for the University and nonacademic sectors of the institution are intended to increase the awareness of UT Health San Antonio's long-standing commitment to preventing harassment and to focus on the internal resolution of any complaints. Under these policies and procedures, the more familiar category of sexual harassment as well as harassment related to age, ancestry, color, disability as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, gender, gender identity and/or expression, marital or parental status, national origin, pregnancy, race, religion, sexual orientation, veteran's status or any other category protected by federal or state is

prohibited. The provisions include protections for and prohibit retaliation against an individual making a complaint or supplying information about a complaint. They also incorporate protections for a person who considers himself or herself accused in bad faith. While all administrators and supervisors have responsibility under this document, certain people have been specifically designated to deal with concerns and complaints that might come forward. For inquiries or complaints of sex discrimination, sexual harassment (including sexual violence) or sexual misconduct from students, residents, or faculty members, contact the Title IX Director, John Kaulfus, [TitleIX@uthscsa.edu](mailto:TitleIX@uthscsa.edu) or by calling (210) 567-2982.

### **Residency Requirements (minimum number of credit hours that must be satisfied by courses offered by the institution)**

Students must complete at least 33% of their degree program at the UT Health San Antonio to be eligible for the degree.

### **Residence Required for Graduation**

Although this is a distance education program, each doctoral student must register as a UTHSA full-time student (6 or more SCH per semester) for a minimum of two full semesters, or the equivalent. PhD candidates must be registered in the dissertation course for at least two terms. This requirement is based on the premise that the scholarship and proficiency necessary for achievement of the PhD in the Health Sciences are best acquired through endeavors devoted to study and research under the auspices of the university. Full time enrollment for the PhD in Health Sciences is defined as at least 6 semester credit hours (SCH) per semester; however, registration for dissertation hours (3 SCH per semester) can be used to meet this requirement.

**Waiver of Courses:** With the approval of the Committee on Graduate Studies and the GSBS Dean, graduate credit hours from other universities may be accepted in lieu of required courses. In addition, the Committee may waive certain required courses, based on the student's previous graduate course work. These hours will be accepted in the form of credit for the course material rather than by application of credit hours directly to the student's transcript.

### **Foreign Language Requirement**

Demonstration of proficiency in a foreign language is not required for either the PhD degree.

### **Student Employment**

While many students in the PhD in Health Sciences program are working professionals, certain full-time graduate students may be awarded stipends as teaching or graduate research assistants when funds are available. Student stipends funded from federal sources are governed by federal regulations.

### **Student Academic Grievance Process**

An **Academic Grievance** is a complaint regarding an academic decision or action that affects a student's academic record. The student complaint may include grade disputes, scholastic dishonesty, ethical or professional misconduct, altering of official university or school documents, or other academically related issues.

As required by the University of Texas System and the policies of the Health Science Center, a complaint procedure is a process to allow students the opportunity to informally and formally report any perceived act, omission, or issue of an academic nature which may adversely affect the grieving student. An informal grievance process is recommended, but not required in order to file a formal complaint.

Students are encouraged to grieve their complaint through the informal grievance process followed by the formal grievance process; however, students may also directly file a formal complaint to the program COGS and GSBS Dean's Office. The process below outlines the actions of the informal and formal grievance procedures.

### **Informal Grievance Process:**

1. Graduate students should seek resolution with the course director or supervising professor within 10 business days of being issued the grade or evaluation in question.\*
2. If a resolution is reached, then the course director or supervising professor must provide the student with a written summary of the decision that was mutually reached.
3. The student must agree to the final decision and sign the summative statement.
4. If the student and course director/supervising professor are not able to resolve the matter, then this should be reflected in the written summary.
5. All documents (emails/memos/letters) will be maintained by the student's program office (e.g., Department of Health Sciences).

The student has up to 10 business days from the receipt of the written summary by the course director/supervising professor to file a formal complaint. The student is responsible for submitting the Student Complaint Form to the Committee on Graduate Studies (COGS) Chair and a copy to the GSBS Dean's office.

### **Formal Grievance Process (Complete the Student Complaint Form)**

1. If a formal complaint is filed by submitting the Student Complaint Form to the COGS Chair of the program and the GSBS Dean's office without an informal resolution process, then the student has up to 10 business days from the date of the academic concern to file a grievance.
2. The COGS Chair along with the program director and GSBS Assistant/Associate Dean will have 30 business days to investigate the grievance.\* At this time, documentation from the student and faculty will be collected as well as face-to-face meetings scheduled by the COGS Chair to collect information and ensure factual accuracy.
3. A written summary of the decision rendered will be provided to the student by the COGS Chair and a copy sent to the GSBS Dean's Office.
4. If the student is not satisfied with the final decision reached by the COGS Chair, program director, and Assistant/Associate Dean, the student may appeal the decision to the Dean of the GSBS within 10 business days of receiving the written summary.
5. All documents (emails/memos/letters) will be maintained by GSBS

\* If the formal academic complaint is filed against the COGS Chair or program director then the Assistant/Associate Dean of the GSBS or his designee will be responsible to process and investigate the informal or formal complaint. If however, the Assistant/Associate Dean is named in the complaint, then his/her designee will represent GSBS on the committee.

## Appeal Process

The student has up to 10 business days of receiving the written summary of the formal grievance process to file an appeal. An appeal is filed by submitting to the Dean of the GSBS a letter signed by the student outlining the arguments for the appeal together with the Student Complaint Form and the written summary from the grievance process. The Dean will have up to 30 business days following the formal grievance process to render a decision. The Dean's decision will be considered final and provided to the student in writing.

## Definition of Terms

For purposes of this policy the terms Complaint and Grievance may be used synonymously.

The Executive Director of the Academic, Faculty, and Student Ombudsperson and ADA Compliance Office is the designated ombudsperson and can provide unofficial, confidential consultation on student's rights, responsibilities, and options.

An Informal Grievance allows a student to pursue a resolution on an unofficial basis with the guidance of his/her Assistant or Associate Dean.

An Academic Grievance is a complaint regarding an academic decision or action that affects a student's academic record.

## Continuation, Probation, and Dismissal

Continuation in the graduate programs is dependent upon three requirements:

1. Satisfactory progress in removing any conditions imposed at the time of admission;
2. Maintenance of a minimum cumulative B (3.0) average for all courses taken while enrolled in the program. A student whose cumulative grade point average falls below 3.0 will be placed on probation and warned by the program director that continuation in the graduate program is in jeopardy. A student will remain on probation as long as her or his cumulative GPA is below 3.0. While on probation, a student must maintain a B average in those courses for which he or she is registered or be considered for dismissal by the Committee on Graduate Studies. Except in the case of illness, permission to drop courses will not be given while the student is on probation. A student on probation may not be admitted to candidacy or awarded a degree. Grades achieved during enrollment as a non-degree seeking student are not used to determine academic probation.
3. A satisfactory rate of progress toward the degree as determined by the Committee on Graduate Studies is required throughout the student's enrollment. The Committee, with the GSBS Dean's consent, may terminate a student's enrollment for lack of satisfactory progress. Any graduate student who receives two unsatisfactory (D, F or U) grades in consecutive semesters will be considered for dismissal by the program Committee on Graduate Studies. Any recommendation for dismissal requires final approval by the Dean of the Graduate School of Biomedical Sciences.

## Withdrawal

Permission for withdrawal from a graduate program may be granted by the GSBS Dean upon concurrence by the Committee on Graduate Studies of the program. The student who wishes to withdraw must complete and sign the Student Clearance Form (available from the Office of the University Registrar, Room 317L MED), submit the form for signature to the COGS Chair and GSBS dean, and then obtain authorized signature clearance from each area listed on the lower portion of the form.

In the case of withdrawal before the end of the semester or summer session (and thus the dropping of all courses), the grading symbol **W** will be recorded for each course not completed. In the case of withdrawal at the end of a semester, the appropriate grading symbol will be recorded for each completed course.

An application for readmission by a student who has previously withdrawn is subject to the same requirements, procedures, and acceptance considerations that apply to first-time applicants.

## Leave of Absence

The student should make a written request for a leave of absence to the Chair of the Committee on Graduate Studies for her/his program, including the reasons for the request and the expected time of return. If the request for leave of absence is approved, the student is so notified by a letter from the GSBS Dean, as provided by the Graduate School Dean's Office. The student must then complete a **Student Clearance Form** available from the Office of the University Registrar (317L MED). The student should then complete and sign the upper portion of this form, obtain the signatures of the COGS Chair and the Graduate School Dean; and obtain authorized signature clearance from each area listed on the form. The student should also drop any courses for which they are currently enrolled.

### *In Absentia* (INTD 1000)

Students must be registered for the semester in which they graduate and all fees and tuition apply. A special arrangement is made for students who defend the dissertation or thesis after the last Graduate Faculty Council (GFC) meeting of the semester and before the first class day of the following semester.

The student who expects to defend the dissertation or thesis in this interval should register for one credit hour for the next semester. Following the successful defense of the dissertation, the student may drop the one credit hour and register *In Absentia* for the coming semester. This must be accomplished before the first class day of the new semester. Registration *In Absentia* should be designated as zero credit hours and the student will be charged a \$25 fee.

## Non-registration

A student who fails to register for two or more consecutive semesters and does not elect to take a leave of absence or to enroll *In Absentia* will be considered for dismissal from the program. The Registrar will notify the Committee on Graduate Studies and the deans of the student's failure to register.

If dismissed, the student may reapply for admission. Such application is subject to the same requirements, procedures, and acceptance considerations that apply to first-time applicants.

### **Graduation**

The degree of Doctor of Philosophy is awarded by the Board of Regents upon the satisfactory completion of a prescribed program of study as documented by the Committee on Graduate Studies, recommendation of the Graduate Faculty Council, and certification of the candidate by the Deans and President to the Board of Regents.

### **Commencement**

Graduation exercises are held each year in May.

The Graduate School Dean will be present to address the students and participate in the presentation of diplomas. Candidates for graduation in the Health Sciences PhD program, Nursing Science PhD program, the Pharm.D. program and the Master's in Dental Science program will participate in the Graduate School Commencement.

## Appendix A: COURSE DESCRIPTIONS

### **Education Core (12 SCH)**

#### **\*HSCI 7001 Foundation of Education (3)**

This course will review models of learning theory as they relate to higher education, professional education and adult and career continuing education contexts, as well as application of learning theory to teaching methods and evaluation. Various learning theories will be introduced, to include behavioral, cognitive and constructive theory, motivation and newer theories of learning based on cognitive science.

#### **\*HSCI 7002 Curriculum and Instruction (3)**

This course provides hands-on experience with developing competency-based curricula for health science education programs. Program development, needs assessment, goals, course construction and sequencing, course descriptions, objectives, outlines, syllabi, content and outcomes assessment and evaluation for specific learning audiences will be described.

#### **\*HSCI 7003 Methods and Evaluation (3)**

A comprehensive review of various teaching methods and learning outcome evaluation techniques. Topics included are developing and implementing course goals, objectives, learning activities, lesson plans, synchronous and asynchronous learning platforms, evaluation methods, test construction, and course and program evaluation. Psychometric measures and interpretation including item analysis and descriptive statistics are included.

#### **\*HSCI 7004 Teaching Practicum (3)**

Graduate students will engage in one or more of a variety of interrelated teaching activities -- lecturing, class discussion, one-to-one tutoring, office hours, and grading in the various specialty and core curriculum under the direct supervision of a faculty member. Students will also be required to complete didactic assignments related to curriculum design, presentation and evaluation.

### **Research CORE (16 SCH)**

#### **\*HSCI 7101/OCCT 5023 Research Design I (3)**

This course introduces students to methods of scientific research to include review of literature, research designs, sampling techniques, measurement, and related issues. Research articles and research thesis that exemplify various research designs, presentation of results, and conclusions will be reviewed and discussed. Students will further develop their information literacy skills to search, interpret and evaluate the medical literature in order to maintain critical, current and operational knowledge of new medical findings including its application to individualized patient care.

#### **\*HSCI 7102 Research Design II (3)**

This course introduces the student to methods of research using qualitative design and appropriate statistical analysis techniques used in qualitative data analysis. Questionnaire and survey construction, validation and statistical analysis techniques will be discussed. Advantages and disadvantages of interview data collection techniques as well as techniques such as Delphi are included.



**\*HSCI 7103/NURS 7316 Statistics I (3)**

This course will focus on concepts and procedures for descriptive and inferential statistics for continuous and discrete data and data analysis using parametric and nonparametric statistical procedures. Computerized statistical programs, such as SPSS, will be used. Instruction on information literacy to equip students with the necessary skills to search, interpret and evaluate the medical literature in order to maintain critical, current and operational knowledge of new medical findings including its application to individualized patient care will be included.

**\*HSCI 7104 Statistics II (3)**

This course will be a continuation of HSC 612: Introduction to Biostatistics. Hypothesis testing techniques which involve observation and analysis of more than one statistical variable at a time will be discussed. Examples include ANOVA, ANCOVA, MANOVA, MANCOVA, t-tests, and regression models.

**\*HSCI 7105 Introduction to Grantsmanship (2)**

This course is designed to provide the practical aspects of proposal submission. In addition to covering basic writing skills, it addresses specific elements that should be included in each of the various sections of federal grants, foundation applications, and biotech contracts. In addition, it talks about ways of identifying sources for funding, a survey of the NIH landscape and how to prepare budgets. The online submission process is also reviewed.

**\*HSCI 7106 Research Seminar 1 (1)**

First part in planning and conducting the required dissertation research project. Students are expected to begin to formulate their research question(s) to include background and significance, problem and purpose statement, need for the study, assumptions, limitations and delimitations, and definitions. Students will also complete their review of the literature in preparation for their preliminary research proposal defense.

**\*HSCI 7107 Research Seminar 2 (1)**

Continuation of Research Project I. Students will continue planning and conducting the required dissertation research project. Students are expected to begin to formulate their research methods and procedures and complete preparation for their research proposal defense.

**Research Dissertation (9 hours total minimum requirement)**

**\*HSCI 7304 Dissertation v 2-9 hours**

Students complete research in preparation of a dissertation in partial fulfillment of the requirements of the degree program. Includes supervision while student is writing the doctoral dissertation following all required course work. Prerequisite: permission of program director. This is a pass/no pass course. Repeated until dissertation has been successfully defended.

**Leadership Core (10 SCH)**

**\*HSCI 7201 Leadership Theory (3)**

Provides an overview of evidence-based methods for evaluating and developing leaders and leadership. Topics include: the history of leadership assessment and leadership theory; use of validated assessment methods in measuring leadership (e.g. interviews, assessment centers, and cognitive and objective assessments); applications of adult development and career development

theory; and organizational approaches to leadership development (e.g. talent reviews, developmental assignments, 360-degree feedback, and succession/acceleration programs).

**\*HSCI 7202 Issues and Trends in Health Care (3)**

Current issues and trends in health care are discussed. An overview of the United States health care system, its history, structure, major components and overall performance is provided, followed by a review of the interrelationships among various trends and forces that are likely to shape the roles and responsibilities of health care institutions in the future. Students become well versed in the major issues facing the health care industry and the public/private/individual roles needed to address these issues. Concepts in organizational behavior, health economics, health care finance, health care planning and marketing, and health insurance and managed care are discussed.

**\*HSCI 7203 Ethics in Clinical and Research Settings (1)**

This web-based course provides the student with an interactive format to discuss the researcher's responsibilities for conducting ethically sound scientific research as well as select ethical issues in research. Each student will have the opportunity to analyze an ethical issue as it relates to the student's research project or topic.

**\*HSCI 7204 Management and Supervision (3)**

Principles of management and supervision as they relate to the organization and administration of health care facilities, higher education and the academic department will be discussed. Governance of higher education to include organization, control, funding, and evaluation will be described and the principles of management and supervision as they relate to the administration of the academic department will be discussed. Basic principles of management to include planning, organizing, directing and controlling, management and evaluation of personnel and programs, motivational theory, conflict management and principles of delegation will be covered.

**Professional Tracks: (9 SCH)**

**Medical Laboratory Science:**

**MLSC 5013 Medical Toxicology/Therapeutic Drug Monitoring (3)**

This course provides the student with the knowledge of the major classes of drugs and bioactive compounds, their mode of action and the concept of toxidromes. This course will concentrate on the role of the laboratory in personalized medicine (effect of individual genetics on the response to drugs and the production of toxicity in pain management and drug addiction) and the parts genomic testing and therapeutic drug monitoring should play.

**MLSC 6000 Advanced Diagnostic Microbiology (3)**

The course will discuss etiology of infectious diseases in different patient populations, different body sites and organ systems in a case-based approach. Appropriate specimens and laboratory tests based on patient signs and symptoms will be emphasized. Recent developments in microbiology and new methods in the identification of bacterial agents of infectious disease will also be presented. The course will explore the public health and infection control aspects of infectious diseases.

**MLSC 6003 Evidence-based Medicine in Medical Laboratory Science (3)**

This course introduces the principles of, rationale for use of, and the process employed in evidence-based medicine in laboratory medicine. Topics include: basic principles of evidence based medicine, development of focused questions, identification and use of the hierarchy of information, critical appraisal of literature, and application to laboratory practice scenarios. Students will complete a literature review on a critically appraised topic and submit written paper that critiques the evidence on the topic.

**\*MLSC 7091 Selected Topics in Medical Laboratory Sciences (1-9)**

This course is an independent study of topics of current interest in medical laboratory sciences. Includes study of current research and important new developments in specific areas of practice and research. Can be repeated for up to 9 credit hours.

**\*MLSC 7097 Research in Medical Laboratory Sciences (3-6)**

This course comprises independent and original research in one of the four major disciplines: microbiology, clinical chemistry & toxicology, hematology and immunohematology. This will be conducted under the supervision of a faculty advisor.

**MLSC Electives (3-9)**

MLS elective chosen from the MS MLS upper-level course offerings.

**Occupational Therapy:**

**OCCT 7091 Selected Topics in Occupational Therapy (1-9)**

This course is an independent study of topics of current interest in occupational therapy. Includes study of current research and important new developments in specific areas of practice and research. Can be repeated for up to 9 credit hours.

**OCCT 7110 Advanced Occupational Therapy Theory and Practice (3)**

Students will explore and analyze the complex process of knowledge generation in the profession through the theories and epistemologies that have shaped contemporary occupational therapy practice. Students will explore the development of theories, societal and systems influences on the theoretical evolution of the profession, and influences on epistemic reflexivity in the profession.

**OCCT 7114 Advanced Evidenced-based Practice in Occupational Therapy (3)**

Students will explore the nature of evidence-based practice as it relates to the trajectories of research and practice in the profession. This course will emphasize critical analysis of research, knowledge translation, diffusion of evidence into practice, and implications for future developments of research in occupational therapy.

**OCCT 7125 Population Health and Occupational Therapy (3)**

Students will explore aspects of population health from an occupational therapy theoretical and practice perspective. This course will emphasize occupational perspectives related to social determinants of health, an occupation-based approach to management of chronic conditions, and national and global perspectives on the role of occupational therapy in addressing factors related to population health.

**\*OCCT 7097 Research in Rehabilitation Sciences (3-6)**

This course requires an independent research project in a selected area of rehabilitation sciences directed by a department faculty member. Can be repeated for up to 9 credit hours.

**OCCT Electives (3-9)**

OT electives chosen from upper-level OTD course offerings.

**Physical Therapy:**

**\*PHYT 7097 Research in Rehabilitation Sciences (3-6)**

This course is independent research in a selected area of rehabilitation sciences directed by a faculty member. Can be repeated for up to 9 credit hours.

**\*PHYT 7801 Advanced Studies in Physical Therapy (3)**

This course is an independent study directed by a faculty member in a laboratory or clinical venue in which students study methods and tools of measure using advanced equipment or procedures to assess human performance. Can be repeated for up to 9 credit hours.

**PHYT 7802 Practicum in Clinical Practice (3)**

This course is an independent study of topics of current interest in the physical rehabilitation sciences. Includes study of current research and important new developments in specific areas of practice and research. Can be repeated for up to 9 credit hours.

**\*PHYT 7091 Selected Topics in Physical Therapy (1-9)**

This course is an independent study of topics of current interest in the physical rehabilitation sciences. Includes study of current research and important new developments in specific areas of practice and research. Can be repeated for up to 9 credit hours.

**PHYT Electives (3-9)**

PT electives chosen from the DPT course offerings.

**Physician Assistant Studies:**

**\*PHAS 7091 Selected Topics in Physician Assistant Studies (1-9)**

This course will provide the student with the opportunity to explore topic areas within the Physician Assistant profession. Students will explore various aspects of the profession in order to develop a deeper understanding of these areas, to include: the profession's history, social and policy issues related to the Physician Assistant profession, professional liability, educational philosophy, certification/licensure requirements, professional concepts/issues, clinical practice issues, socio-economic factors in healthcare and the interprofessional team approach to patient care. Can be repeated for up to 9 credit hours.

**PHAS 7010 Current Issues in Physician Assistant Education (3)**

This independent study course will provide the student with an opportunity to collaborate with a faculty mentor to select a topic of interest for research analysis and application to PA education comparing and contrasting traditional PA education curriculum with current physician medical school curriculum for application to new models of curriculum delivery. The scope of the project will be defined by the student under the guidance of the faculty mentor.

**PHAS 7020 Physician Assistant Leadership and Governance (3)**

This course will provide a critical examination of topics related to PA leadership. The history of various PA professional organizations and the role of leadership in the advancement of the profession will be discussed as well as current changes in the profession which will affect governance, national legislation affecting PA's, certification maintenance and the future direction of the profession. Students will engage in research and develop projects to test theories and their impact of future PA leaders and the profession.

**\*PHAS 7030 Research Topics in Physician Assistant Clinical and Professional Practice (3)**

This independent study course will explore the current state of PA research across the profession and will provide the student with an opportunity to collaborate with a faculty mentor to select a topic of interest for research analysis and application to PA clinical practice, professional practice, or academic practice.

**PHAS Electives (3-9)**

PAS elective chosen from the upper-level MPAS course offerings.

**Respiratory Care:**

**RESC 7091 Selected Topics in Cardiopulmonary Sciences (3-6)**

Students will be given an opportunity to gain an in-depth understanding of selected topics through seminars, conferences, projects, or other appropriate learning methods.

**RESC 5015 Education in Respiratory Care (3)**

This course is an introduction to basic principles and techniques used in respiratory care education. Topics include patient education, in-service education, course design, objectives, lesson plan development, learning activities, use of media, development of presentations, testing and evaluation.

**RESC 5023 Advanced Cardiopulmonary Diagnostics and Pulmonary Function Testing (3)**

This course focuses on normal and abnormal cardiopulmonary function utilizing diagnostic tools. The course provides hands on opportunities to perform, interpret, and evaluate various cardiopulmonary diagnostic results to include the operation, calibration, quality control, and maintenance of pulmonary function and gas analysis equipment.

**RESC 7042 Advanced Clinical Practice (3)**

This clinical observation provides the students the opportunity to observe and achieve competencies related to respiratory care procedures in the adult, pediatric and neonatal critical care units, the diagnostic and pulmonary labs, and other specialty areas. The topics include initiation of mechanical ventilation, patient stabilization and monitoring, measurement and evaluation of hemodynamic variables, bronchial hygiene, evaluation for weaning, extubation, arterial line samples, arterial puncture, blood gas analysis, and noninvasive monitoring.

**\*RESC 7097 Research in Cardiopulmonary Sciences (3-6)**

This is a self-designed course created by both the student and the department to cover a specific topic. The student will need to provide documentation of the designed research and gain project approval by the course director.

**RESC Electives (3-9)**

RC electives chosen from the MS RC upper-level course offerings.

**Speech Therapy:**

**MSLP 5007 Motor Speech Disorders (3)**

This course addresses the neuromotor aspect of speech disorders, including apraxia of speech and dysarthrias. The content areas covered include theoretical models, neuropathophysiology, symptomatology, various instruments and tests for assessment and differential diagnosis as well as clinical management of both developmental and adult-onset motor speech disorders.

**MSLP 5009 Dysphagia in Adults and Children (3)**

This course addresses swallowing disorders in both adult and children in various populations across the age span. Content areas covered include normal anatomy and physiology of swallowing, evaluation of disordered oropharyngeal swallowing using both instrumental and noninstrumental examination tools with special emphasis of videofluoroscopic swallow study (VFSS) procedures and analysis, and evidence-based treatment strategies for swallowing disorders.

**MSLP 5012 Cognition and Communicative Disorders (3)**

This course examines normal cognition and the effects of aging and dementia to the nondominant cerebral hemisphere as well as traumatic brain injury on communication. Both assessment and management of communication disorders arising from these conditions are addressed.

**\*MSLP 7091 Advanced Topics in Communication Sciences and Disorders (1-9)**

This course addresses advanced skills in research and evidence-based practice in scientific, clinical, and professional issues related to communication sciences and disorders.

**MSLP Electives (3-9)**

SLP electives chosen from upper-level MS SLP course offerings.

**Selected Topics in Health Sciences**

**\*HSCI 7301 Education (3)**

This course is an introduction to basic principles and techniques used in education. Topics include course design, objectives, lesson-plan development, learning activities, use of media, development of presentations, testing and evaluation.

**\*HSCI 7302 Research (3)**

This course addresses the skills in understanding and critiquing research reports. Principles and criteria for evaluating published research, including statistical analyses, issues of validity and evidence-based practice are discussed.

**\*HSCI 7303 Clinical Delivery (3)**

This course emphasizes basic clinical methods and skills for beginning graduate students with an emphasis on assessment and intervention. Clinical note writing and documentation are modeled and discussed. Topic areas covered include various published and evidence-based clinical protocols and operational procedures in management.

**\*HSCI 7091 Selected Topics in Health Sciences (1-9)**

This course is an independent study of topics of current interest in health sciences. Includes study of current research and important new developments in specific areas of practice and research. Can be repeated for up to 9 credit hours.

*\*Indicates new course*

**On-line Public Health Courses (UT Health Houston School of Public Health - San Antonio Campus)**

*Note: these courses are offered on-line and face-to-face through UT Health Houston's School of Public Health and require separate application, registration and fees, as well as approval of the student's major advisor and program director. Satisfactory completion of prescribed course work (15 SCH) leads to the award of Graduate Certificate in Public Health (requirements subject to change).*

**PH 1700 Intermediate Biostatistics (3 credits)** (online or face-to-face) This course is required for students minoring in Biostatistics and for students in Biostatistics who have not previously taken biostatistics courses. This course extends the topics covered in Foundations of Biostatistics to provide a deeper foundation for data analysis, particularly focusing on its application on research problems of public health and the biological sciences. Computer applications are included. Prerequisites: PH 1690 or equivalent knowledge/training. PH 1610 is not sufficient.

**PHM 2612 Epidemiology I (3 credits)** (online or face-to-face) This course provides a strong foundation in concepts, principles, and methods specific to epidemiology. By the end of this course, students should be able to apply these skills to (a) assess the health of a population; (b) describe the natural history, distribution, and determinants of health-related states and events; and (c) evaluate programs designed to improve public health. To accomplish this, the course considers epidemiology in the context of core public health functions and services.

**PHM 3715 Management and Policy Concepts in Public Health (3 credits)** (online or face-to-face) This course provides an overview of theory and practice in the management and policy sciences applied to the field of public health. Topics include public health in the U.S. health system/legal bases of public health, public policy institutions, planning and management to promote health, emergency preparedness, public sector institutions, management, and decision-making. Students will gain skills in oral and written communication with individual and group projects.

**PHM 1110 Health Promotion and Behavioral Sciences in Public Health (3 credits)** (online or face-to-face) After completing this MPH core course, students will be able to explain the contribution of health promotion and behavioral sciences to public health. Students will learn about commonly used theories and models, community engagement, needs assessment, and program design, implementation, and evaluation. Throughout the semester, students will improve oral and written communication skills while applying newly acquired knowledge related to public health problems.

**PHWM 2110 Public Health Ecology & the Human Environment (3 credits)** (online) This course provides an introductory overview of the basic principles underpinning public health

ecology and environmental health. It satisfies the core environmental health MPH requirement for majors and nonmajors. Students are provided with foundational knowledge in public health ecology, principles of environmental health and an introduction to environmental policies & controls. Applications of this knowledge will be applied to an environmental case study, wherein students will use a systems thinking approach to identify the key elements of the problem, develop solutions and articulate a dissemination plan. In addition, inter-professional engagement simulations will be used to provide students with skills for engaging stakeholders, including community members, policy makers/enforcers, and other healthcare professionals.

### **Interdisciplinary Courses (INTD and TSCI)**

#### **TSCI 5070 Responsible Conduct of Research (2)**

This interdisciplinary course is designed to train participants in the responsible conduct of patient-oriented clinical research. Students will have the opportunity to learn to and, by the end of the course, be required to: (1) delineate a history of hallmark abuses of humans enrolled in clinical research; (2) describe the evolution of national and international codes and regulations guiding inclusion of human subjects in clinical investigations; (3) list the elements of informed consent and describe procedures and precautions for enrolling special populations into clinical investigation; (4) write a consent form in understandable language; (5) recognize different forms of scientific misconduct; (6) describe the role and processes of a peer review board to judge violations in research ethics; (7) develop strategies for self-assessment and validation of scientific objectivity in one's own research; and (8) recognize the ethical responsibilities and consequences of whistle blowing.

#### **INTD 5001/3001 International Elective (3)**

Students will work with the course director and Assistant Director of Global Health to identify an appropriate international elective site, using established sites/programs or one that the student discovers on their own. All rotations must be vetted and approved by the course director and will adhere to a community service-learning model that is a structured educational experience combining community service with preparation and reflection. Students are expected to help shape the learning experience around community-identified needs and advance insight related to the context in which service is provided, the connection between service and academic coursework, and students' roles as citizens and professionals. Students will spend 4 weeks living and working at an international service site. Sites may allow for a range of experiences, such as participating in patient care, conducting clinical or public health research, and/or participating in a language immersion program. There may also be opportunities for patient education and emphasis on efforts of local empowerment, aiming to build up the communities in a sustainable way. Regardless of the focus, all sites must be supervised by qualified health care providers. Students are encouraged to integrate themselves into the health care delivery system, to explore community needs that they could address, and when possible, to strive to make an impact through community education, home visits, and research. Reflection essays serve as a way to process experiences, including clinical cases, new perspectives gained, and analysis of health care disparities, and strategies for the overcoming poverty-related health problems. Students are encouraged to share their experiences upon return through a formal presentation.

#### **INTD 5030/3030 Clinical Foundations (3)**

The purposes of this course are to 1) Prepare students to excel as learners in clinical settings by providing foundations for clinical skills including finding information, presenting cases, charting, writing orders, completing other paperwork, and clinical reasoning including basic



EKG and radiograph interpretation; 2) Assist students in developing new skills expected of third-year clerks including lab skills (phlebotomy, ABG, blood cultures, hemocult cards), IV insertion, PPD placement, sterile gowning/ gloving, basic suturing, nasogastric tube placement, O2 management, and Basic Cardiac Life Support; and 3) Prepare students for their new roles in clinical settings, where they encounter patient care responsibilities along with patient privacy and ethical issues. Successful completion of the first two years of Medical School and approval of the director of the MD/PhD program are required.

### **INTD 5058/3058 Hospice and Palliative Medicine (3)**

This rotation offers clinical experience in Hospice and Palliative Medicine (HPM). Palliative care provides treatment for seriously ill hospitalized and ambulatory patients and focuses on symptom management, enhancement of function, physical comfort, quality of life, psychosocial support, and communication about the goals of medical care for the patients as well as their families.

### **INTD 5007/4007 Interprofessional Community Service Learning (2)**

This is an innovative interdisciplinary service learning (CSL) course offered in partnership with the UT School of Pharmacy, PHR 270S, to allow medical students to integrate meaningful community service with instruction, preparation, and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. This course will provide the opportunity for students to examine social justice and social determinant of health issues and apply these principles in a structured serviced learning practicum. The student-led service learning project will address the social and health needs of a community partner and will be conducted with the partner agency in a culturally competent manner. Through online learning modules, readings, and discussion; monthly class sessions; a group service learning project; and a structured service learning practicum, this course combines community service with preparation and reflection to foster civic responsibility in the health professions.

### **INTD 5008/4008 Interprofessional Care in HIV (0.5)**

Students will have the opportunity to learn how to function as a member of an interprofessional team in HIV case management. The objective is for students to become familiar with issues of patient safety, health literacy, medication reconciliation, and interprofessional teamwork in HIV care. This is an elective didactic course. This is an elective didactic course.

### **INTD 5009/4009 Interprofessional Care in HIV (2)**

Students will have the opportunity to learn how to function as a member of an interprofessional team in HIV case management, and become familiar with issues of: patient safety, health literacy, medication reconciliation, treatment guidelines, and interprofessional teamwork in HIV care.

### **INTD 5018/4018 Independent Elective in Ethics (2)**

In this longitudinal course, students will be required to undertake an independent study into a specific issue in medical ethics or medical humanities. Students will be required to read on research methods in medical ethics as well as literature in their issue of interest, and then to propose and conduct an original study project, a literature review, a position paper, or an ethical analysis of a particular topic or case. Students will be expected to write an academically rigorous final research report of 10 to 15 pages. Students will be encouraged to produce a final paper that can be submitted for publication in a peer-reviewed bioethics or medical humanities journal. Students will be required to meet with the instructor and/or chosen faculty advisor over the course for assistance, guidance, and discussion. (Center for Medical Humanities and Ethics).

**INTD 5019/4019 Clinical Ethics (2)**

Students in this two-week course will have the opportunity to focus on work in clinical ethics consultation. The student will be required to participate in rounds as an ethicist, do in-depth reading on clinical ethics consultation, observe clinical ethics consults, attend ethics committee meetings, and provide an educational seminar to hospital staff on an issue of ethical significance.

**INTD 5025/4025 Healthcare Practice and Policy Elective (0.5)**

The Healthcare Practice Elective is an introductory-level, discussion-based, eight-hour course targeted to fourth-year medical students. The course focuses generally on practice and policy issues of payment methodologies, cost-effectiveness, and access to care.

**INTD 5030/4030 Preparing for Global Health Work (2)**

This is a 2-week multidisciplinary course for 4th-year medical students who are planning future global health experiences, arising in response to enormous interest in international medicine, with increasing numbers of students choosing to spend time overseas during medical school. This preparatory course aims to provide a foundation of practical knowledge in global health to optimize the students' overseas experiences, facilitate their adaptation to working in different cultural settings, and maximize their impact in the communities where they serve. Topics include chronic and infectious disease, parasite infection, prioritizing community resources, health disparities, ethical dilemmas, cultural awareness, and professionalism. Course material is presented through a variety of approaches, including lectures, small-group case discussions, laboratory sessions, and online learning modules.

**INTD 5045/4045 Patient Notes- Enrichment Elective (3)**

It is an interactive, inter-professional course that engages students in music listening sessions to teach students active listening skills. Through various forms of music, students will learn how to actively listen for specific details to gain insight on meaning, become comfortable with ambiguity and interpretation, and develop pattern recognition skills to quickly recognize deviation. Students will also develop stronger methodology for writing patients notes through conceptual practice of SOAP format notes for music pieces. Taught jointly by UTHSCSA faculty and professional musicians, this strategy of applying practical skills to an abstract concept such as music will refine these skills for students in clinical settings. Specifically, this course aims to improve interpersonal communication skills, and organizational note writing. This is also an opportunity for students to practice problems solving with other healthcare professionals.

**INTD 5048/4048 Art Rounds (2)**

This is an interactive, interprofessional course that takes students to the McNay Art Museum to learn physical observation skills. Studies demonstrate that increased observational skills translate to improved physical examination skills. Using artwork as patients, students will have the opportunity to learn how to observe details and how to interpret images based on available evidence. Taught jointly by Health Science Center faculty and McNay museum educators, students will have the opportunity to develop and hone their observation, problem solving, and assessment skills. They will also observe, interpret, and give case reports on the original works of art to teach them the skill of verbalizing descriptions of what is seen, and not to accept assumptions made with a first impression.

**INTD 5058/4058 Hospice and Palliative Medicine Elective (4)**

This rotation offers clinical experience in Hospice and Palliative Medicine (HPM). Palliative care provides treatment for seriously ill hospitalized and ambulatory patients and focuses on

symptom management, enhancement of function, physical comfort, quality of life, psychosocial support, and communication about the goals of medical care for the patients as well as their families.

#### **INTD 5005 Core Course 1: Biochemistry (2)**

Topics to be covered include: protein structure; properties of enzymes; structure, biosynthesis, and function of lipids; pathways and regulation of carbohydrate metabolism and biosynthesis and regulation of amino acids, nucleotides, and related compounds. Prerequisites: consent of instructor.

#### **INTD 5007 Advanced Cellular and Molecular Biology (4)**

This course provides an in-depth learning experience that instructs students on the fundamentals of molecular biology and cell biology as well as prepares the student to evaluate and design new research in the cutting-edge areas of modern molecular biology and cell biology. The course combines a didactic program of lectures along with a small group discussion format in which students interact closely with a group of faculty who have active research programs. The course focuses on active areas of research in molecular biology: Chromatin structure, DNA Transcription, DNA Replication and Repair, Recombination, RNA processing and regulation, Protein processing, targeting and degradation and in cell biology: Cell Signaling and Communication, Cell Growth, and Cell Death. Each week, the faculty provide students with didactic lectures on a current research area. Students and faculty will then jointly discuss key publications that serve to bridge the gap between the fundamental underpinnings of the field and the state of the art in that area.

#### **INTD 5023 Research Ethics (1)**

The goal of this course is to provide the Master's student an opportunity to gain the essential standards necessary for training and education approved by the National Institute of Health. This course links to the web-based NIH Clinical Research Training On-Line Course <http://www.cc.nih.gov/training/training/crt/infor.html> for Principal Investigators that is required for all individuals conducting research.

#### **INTD 5035 University Teaching Excellence Course (2)**

This course targets early career faculty seeking to acquire teaching skills. The program provides the fundamentals of effective teaching using contemporary pedagogic methods.

#### **INTD 5040 Fundamentals of Neuroscience 1: Molecular, Cellular, & Developmental Neuroscience (2)**

This course is intended to introduce students to a broad survey of the basics of molecular, cellular and developmental neuroscience. The course is organized into a series of three modules: biochemical and cellular properties of nervous system cells, development of neuronal systems, and neurotransmission and neuromodulation, which covers the fundamentals of these three areas. Current topics and concepts are discussed in discussion sessions that include student participation.

#### **INTD 5043 Fundamentals of Neuroscience 2: Systems Neuroscience (3)**

This course, the second component of our broad survey of the basics of neuroscience, begins at the level of the neural circuit, and guides the students through an understanding of increasingly complex levels of organization and function in the brain. Topics include neurotransmitter systems, sensory and motor function, motivated behavior, regulation and integration of

autonomic, behavioral, and emotional responses in the limbic system, higher order cognitive processes, and the neurobiological basis underlying some important psychiatric disorders and their treatment.

### **INTD 5046 Metanalysis In Cognitive Neuroimaging (2.5)**

The objective of this course is to familiarize students with human functional brain imaging methods, experimental designs, statistical analyses, inferential strategies, and content. Students are guided through a literature-based research project that culminates in a quantitative metanalysis of a set of studies using similar tasks.

### **INTD 5047 Neuroanatomy (2)**

The purpose of this course is to provide students with a practical working knowledge of the structure of both the peripheral and central nervous system. The emphasis will be on the organization of the human brain, although the brains of other species may also be included if appropriate for a specific brain region. The course will look at each of the individual components of the central nervous system in some depth but will also emphasize the complex integration of these various components into a functional brain. The topics covered in the course are specifically designed to mesh in time with those covered in Fundamentals of Neuroscience 2 describing the function of these areas. For this reason, it would be best if these two courses were taken concomitantly. The course will be didactic with digital images, models, and wet specimens included in the course.

### **INTD 5064 Applied Statistics for Health Care Practitioners (3)**

This online course focuses on the application of descriptive and inferential statistics in research studies. Students are expected to gain knowledge and skills that will enable them to understand, interpret, and evaluate statistical results; work with a consultant statistician; and use software to enter, analyze, and summarize data. Course requirements include homework assignments, online discussions and/or chats, and periodic projects.

### **INTD 5066 Laughter is the Best Medicine: An Interdisciplinary Elective about Humor, Healing, and Healthcare (1)**

This class is a serious look at humor! The physiological and psychological benefits of humor, as well as its therapeutic use with patient interactions, will be explored. Students will learn how to develop and improve their personal use of humor to combat burn out, through techniques to enhance coping skills and stress reduction. Student participation and interaction is integral to the content delivery.

### **INTD 5067 Introduction To Bioinformatics And Computational Biology (2)**

The course will be taught by faculty from Biochemistry, Cellular & Structural Biology, CCRI, Periodontics, and faculty from UTSA. The course will be an introduction to methods and tools for working with DNA sequences and protein families, learning basic Unix networking, overview of numerical modeling, systems biology approaches to complex diseases, gene expression analysis, bioinformatics in clinical research, statistical tools for complex datasets, proteomics, structural methods for protein biology, chemoinformatics, molecular modeling, and mathematical model building.

### **INTD 5074 Topics In Translational Medical Product Development (1)**

It is crucial to understand the intricate process of translating basic research into market driven products, navigate the complex pathways of intellectual property management and the regulatory affairs of agencies such as the FDA. This course will offer students in biomedical sciences the

opportunity to integrate industry-relevant training and experience with their basic science education. The course will explore the marketing and regulatory process by which a biomedical product is developed and brought to commercialization.

### **INTD 5075 Complementary Healthcare for the Clinician (3)**

The goal of this elective is to introduce future doctors to practices outside of the classical medical school curriculum that promote an evidence-based approach to wellness. This is so that the medical students of the UTHSC School of Medicine are informed about the reality, evidence and rumor surrounding a variety of commonly used alternative and supplementary healthcare practices. The of this class is not to make the student an expert in areas such as acupuncture or yoga, but to be well informed of the role of such practices as it relates to patient treatment and wellness. To this end, all the classes will have a practical component which will allow the students to experience the alternative modalities in a structured setting.

### **INTD 5076 Introduction To Informatics (1)**

This elective course is designed for students interested in information technologies in the context of clinical investigation. It offers an overview of the field of informatics applied to biomedicine, covering specific applications and general methods, issues, capabilities and limitations of informatics systems. Student teams will conceive, design, specify, implement, evaluate and report on a software project in the domain of biomedicine. The projects will include proposal writing, peer review, and preparing final reports, as well as guest lectures from field experts.

### **INTD 5082 Responsible Conduct of Research (1.5)**

This foundational course introduces students to core ethical content necessary for responsible research conduct. Through interactive seminars, students will learn about (1) scientists as responsible members of society (contemporary ethical issues in biomedical research and environmental/social impacts of research), (2) policies for research with human subjects and vertebrate animals, (3) collaborative research, (4) conflicts of interest (personal, professional, financial), (5) data acquisition and laboratory tools (management, sharing, ownership), (6) responsible authorship and publication, (7) mentor/trainee responsibilities and relationships, (8) peer review, and (9) research misconduct (forms of misconduct and management policies).

### **INTD 6002 Ethics In Research (0.5)**

This course covers topics relevant to ethics in scientific research. The course is taught on a case-study basis, dealing with real and hypothetical situations relevant to the conduct of scientific research. Topics discussed will include, but will not be limited to: data management, peer review, recognizing scientific misconduct, authorship, and The University of Texas regulations relevant to human and animal research. This course is required of all doctoral graduate students.

### **INTD 6007 Advanced Cell Biology (2)**

This course provides an in-depth learning experience that instructs students on the fundamentals of cell biology as well as prepares the student to evaluate and design new research in the cutting-edge areas of modern cell biology. The course combines a didactic program of lectures along with a small-group discussion format in which students interact closely with a group of faculty who have active research programs. The course focuses on active areas of research in cell biology: Cell Signaling and Communication, Cell Growth, and Cell Death. Each week, the faculty the jointly discuss key publications that serve the bridge the gap between the fundamental underpinnings of the field and the state of the art in that area. Students and faculty will then jointly discuss key publications that serve to bridge the gap between the fundamental underpinnings of the field and the state of the art in that area.

### **INTD 6008 Mitochondria & Apoptosis (1)**

This course will focus in depth on Mitochondria and Apoptosis. Topics will include: Mitochondria and Respiration; Mitochondria and Reactive Oxygen Species; Mitochondria and Apoptosis. It will provide an opportunity for a unique learning experience where the student can prepare to evaluate and design new research in the cutting-edge areas of modern cell biology and molecular biology. Instead of a didactic program of lectures, the entire course comprises a small-group format in which students interact closely with a group of faculty who have active research programs. Each week, faculty will provide students with a brief overview of the research area. Students and faculty will then jointly discuss key publications that serve to bridge the gap between the student's prior understanding of the field and the state of the art in that area.

### **INTD 6009 Advanced Molecular Biology (2)**

This course will provide an in-depth learning experience on the fundamentals of molecular biology as well as prepare the student to evaluate and design new research in the cutting-edge areas of modern molecular biology. The course combines a didactic program of lectures along with a small- group discussion format in which students interact closely with a group of faculty who have active research programs. The course focuses on active areas of research in molecular biology: Chromatin structure, Transcription, DNA Replication and Repair, Recombination, RNA processing and regulation, Protein processing, targeting and degradation. Each week, the faculty provide students with didactic lectures on a current research area. Students and faculty then jointly discuss Key publications that serve to bridge the gap between the fundamental underpinnings of the field and the state of the art in that area.

### **INTD 6011 Introduction to Science of Teaching (1)**

This course will provide insight into the basic skills of learning and teaching. Faculty from the Academic Center for Excellence in Teaching and the Graduate School will provide the opportunity to learn the skills, strategies, and experiences for a future in academia and teaching. Topics include lecture presentations on why scientists choose to teach, planning a student learning experience in addition to developing a lecture syllabus, curriculum and teaching portfolio and philosophy. The course is recommended for Supervised Teaching Course INTD 6071.

### **INTD 6019 Pharmacotherapeutics (1)**

This course is designed to review general principles of pharmacology; current and accepted pharmacotherapy for the medical management of pain, infection, and selected systemic diseases; and associated adverse drug events. It is based on the top 200 drugs dispensed by U.S. community pharmacies for the prevention, diagnosis, and/or treatment of disease with special reference to dentistry.

### **INTD 6033 Cell Signaling Mechanisms (2)**

This course covers the molecular mechanisms of action of various extracellular mediators including hormones, neurotransmitters, growth factors, cytokines, etc., and cell signaling events. Several areas will be discussed including: (1) mechanisms of mediator synthesis; (2) interaction of mediators with specific receptors; (3) modulation by mediators of various second messenger systems including cyclic nucleotides, inositol phospholipids, calcium, protein phosphorylation, ion flux, etc.; and (4) intra- and intercellular mechanism for regulating mediator action.

### **INTD 6043 Structure & Function of Membrane Proteins (2)**

This is a course targeted at students within any of the Graduate Tracks. The objective is to provide a broad view, allowing for in depth consideration in selected areas, of the structure and

diverse functions of proteins within a membrane environment. Specific topics covered will include: ion selective channels, large membrane pores, membrane transporters, membrane pumps, and membrane receptors. The format of the course will be didactic lecture followed by student presentations of relevant topics.

### **INTD 6070 Teaching Excellence and Academic Skills (Texas) (1)**

This course, designed to assist graduate students and faculty in acquiring teaching skills, is composed of four modules, each covering a range of topics from lecture and clinical teaching to instructional development to assessing student achievement.

### **INTD 7003 Elective in International Medicine (4)**

This elective serves as a vehicle for students to participate in international medicine rotations. Students will work with a faculty sponsor to identify a program, either a pre-established site or a site discovered by the student which requires faculty approval. This elective includes: 1) The Center for Medical Humanities and Ethics International Scholars program in India, a competitive program requiring a separate application through the department of Medicine, 2) Shoulder to Shoulder program in Latin America, which requires a separate application process and some cost (airfare and small project fee), and is available October, January, and April, 3) programs in Nicaragua, Mexico, Panama, and Guatemala, and 4) Other sites available through online directory: <http://www.globalhealth-cc.org/GHEC/Resources/GHonline.htm>. All rotations share a commitment to service learning - medical education and self-reflection that arises out of service to needy populations. Students spend up to 4 weeks (or possibly longer) living in an international site and participating in the care of patients, under the supervision of local and visiting health care providers. The clinical settings and caseload will vary based on the location. There may be opportunities for patient education and emphasis on efforts of local empowerment, aiming to build up the communities in a sustainable way. Students will be expected to integrate themselves into the health care delivery system, and when possible, to strive to make an impact through community education and home visits. For certain Latin American sites, fluency in Spanish is a prerequisite. Students are encouraged to seek similar service learning experiences with underprivileged populations in San Antonio and Border communities prior to or after the rotation. End of rotation "reflection essays" are required and will serve to process student experiences.

### **INTD 7007 Literature and Medicine (2)**

In this course you are required to read short stories, poems, and a book of nonfiction. While many of the stories or poems directly address medical or ethical issues, the primary purpose is not to enhance your store of knowledge in these areas, but to promote your appreciation of these works through discussions with other students (online via Blackboard and in class) and with authors and lecturers. Your own contributions to the course - not just the insights you've gained as medical students but the wisdom you bring to the class as human beings - will be critical to its success. We hope that the readings will help you prepare for and process your clinical experiences, furthering your development as a person as well as physician. There will be no "right" or "wrong" answers in this course; rather, our goal is to encourage thoughtful and serious responses to the readings and a lively and fulfilling conversation about them and the issues they raise. Students from Christian Medical College in Vellore, India, will join in our discussion online. MSIV students will receive two credits for completion of this longitudinal elective. All

students are expected to participate in class discussions. Grades are earned by reading assignments, attendance at class meetings, and posting primary and secondary responses to posted discussion questions.

### **INTD 7074 Topics in Translational Medical Product Development (1)**

It is crucial to understand the intricate process of translating basic research into market driven products, navigate the complex pathways of intellectual property management and the regulatory affairs of agencies such as the FDA. This course will offer students in biomedical sciences the opportunity to integrate industry-relevant training and experience with their basic science education. The course will explore the marketing and regulatory process by which a biomedical product is developed and brought to commercialization.

## **Cellular & Structural Biology (CSBL)**

### **CSBL 3005 Advanced Anatomy (3)**

Selected students will participate in lectures, detailed dissections, presentations, and teaching of Pre-Matriculation students in the gross anatomy laboratory. A special project or readings in the surgical anatomy literature will be assigned. This elective is considered to be a full-time commitment (40 hours per week). Students are expected to 1) attend all lectures given in the Pre-Matriculation program, 2) to teach in all scheduled laboratory sessions, 3) to prepare and present prosections, 4) to help prepare a laboratory examination, 5) to write and present a literature review on an original topic of interest to the student related to the region of the body being studied.

### **CSBL 4001 Anatomy of the Newborn (4)**

Detailed gross dissection and study of newborn specimen with special emphasis on developmental origins as well as features and relationships differing from the adult; combined with library study of developmental malformations. Course fees: Lab fee \$30.

### **CSBL 5007 Methods in Cell Biology (1)**

Through a combination of lectures and demonstrations, the instructors will introduce students to techniques which are currently being used in cellular biology laboratories. The emphasis will be on the applications themselves, their uses, limitations, and the necessary controls. The following topic areas will be covered: imaging and microscopy, immunological techniques, bioinformatics (DNA and protein), rodent anatomy and histology, cytogenetics, and in vitro cell growth and transfection.

### **CSBL 5022 Inter-professional Human Gross Anatomy (5.5)**

This course will teach structural and functional anatomy of the normal human body. Lectures will serve as introductory information for the laboratory dissections to follow and to clarify the interactions of the various anatomical components to accomplish the function of the body. The course will cover the central and peripheral nervous systems, vertebral column and back, the upper and lower limbs, head and neck, body wall, thorax, abdomen, pelvis, and perineum. Special emphasis will be placed on the laboratory experience in which the learner will perform a detailed dissection of the entire human body in order to achieve an understanding of the three-dimensional relationships and thus the interactive function of the body. The dissections will allow the student to understand the anatomical basis for disease and dysfunction in organ systems and their applications to clinical practice. They will be supplemented by the study of prosected specimens where possible, models skeletons, and other demonstration materials.



### **CSBL 5023 Developmental Biology (1)**

The course provides a survey of concepts in developmental biology (induction, cell-cell interactions, morphogen gradients, morphogenetic movements, transcription regulation, organogenesis) using experimental examples from both invertebrate and vertebrate embryos. The first set of lectures will focus on gametogenesis, fertilization, and early developmental events, such as cleavage, midblastula transition, gastrulation, and axis formation. The second set of lectures will explore the fates of germ layers in the contexts of cell type-specific differentiation and cell-cell interactions during organogenesis.

### **CSBL 5024 Genomics (1)**

This course covers historical aspects of the Genomic project and high throughput methods (microarray, SAGE, proteomics, etc.) to perform global analysis of gene expression; the course also provides an overview of new biological fields such as systems biology, functional genomics, and comparative genomics. The students will have the opportunity to become familiarized with tools, methods, databases, and approaches used to extract biological information from global analyses. Hands-on training on biological databases and classes covering examples of the use of genomics to answer questions related to cancer and diseases is an important part of the course, helping the students to visualize how genomics can be used in their own research projects.

### **CSBL 5077 Scientific Writing (2)**

This course will provide students with the opportunity to develop skills in scientific writing and the presentation of research results. It will emphasize learning-by-doing-and-re-doing. Students will be required to write something every week. The capstone project for students will be to write a grant proposal and defend it in front of the class. One hour per week will be devoted to lecture and critique of published work; the other hour will consist of critique and revision of student writing by other students, as well as by the course director. Topics to be covered include: (1) fundamentals of writing clearly, (2) principles of revision, (3) effective presentation of data, (4) fundamentals of oral presentation, (5) writing/presenting to the appropriate audience, (6) how to write background/introductory sections, (7) how to write materials and methods, (8) how to write the discussion section, and (9) how to constructively critique one's own and others writing.

### **CSBL 5095 Experimental Design and Data Analysis (3)**

The purpose of the course is to provide an introduction to experimental design and statistical analysis. The emphasis of the course will be on the selection and application of proper tests of statistical significance. Practical experience will be provided in the use of both parametric and nonparametric methods of statistical evaluation. Among the topics to be covered are: data reduction, types of distributions, hypothesis testing, scales of measurement, chi square analysis, the special case of the comparison of two groups, analysis of variance, a posteriori multiple comparisons tests, tests of the assumptions of parametric analyses, advanced forms of the analysis of variance, linear regression, and correlation analysis. This course involves the use of statistical software, therefore, access to a laptop or a computer with web access for classes and examinations is required.

### **CSBL 6049 Cellular and Molecular Mechanisms of Aging (2)**

This course provides up-to-date information on the current understanding of cellular and molecular mechanisms that contribute to aging. The focus is on investigation of specific mechanisms of aging including oxidative stress, nutrient sensing signaling pathways, stem cells and senescence, and genome stability. Experimental design and analysis, including pros and

cons of approaches used to gain knowledge and how to appropriately interpret data, will be discussed throughout the course. The relationship between age-related changes in function and potential contributions age associated diseases will be examined via recently published research.

### **CSBL 6050 Aging and Longevity Mechanisms (2)**

This module will focus on and evaluate several approaches used to modulate longevity and how these are used to discover the genetic, physiological and intracellular foundation of aging processes. The course will consist of interactive lectures complemented by guided reading of currently research papers. Students will be taught to hone critical reading skills and develop testable hypotheses to carry research forward. Topics will include: Genetics of Aging, Exceptional Longevity, Pharmacological Interventions, Calorie Restriction, Healthspan and Pathology of Aging.

### **CSBL 6058 Neurobiology of Aging (2)**

The nervous systems of many species, including humans, show obvious declines in function as a result of increasing age. In addition to the gradual decline observed in neural function, it is clear that increasing age also results in increased susceptibility of the nervous system to degenerative diseases such as Alzheimer's Disease, Parkinson's Disease, and Amyotrophic Lateral Sclerosis. This course will focus on recent findings and topics related to the underlying pathology of aging in the nervous system and the relationship of aging to neurodegenerative disease.

### **CSBL 6059 Stem Cells & Regenerative Medicine (1)**

The fields of stem cells and regenerative medicine are rapidly evolving and have great potential to change the way medicine is practiced. This course will encompass topics from basics of tissue specific stem cell biology to pre-clinical animal models, strategies and progress in regenerative medicine. We will discuss some of the most current research being done in regenerative medicine from stem cell transplantation to biomaterials. Prerequisite: INTD 5000.

### **CSBL 6068 Cancer Biology Core 1 (2)**

This course reviews select topics in molecular and cellular biology of importance to molecular oncology. Topics examined include oncogenes, tumor suppressor genes, apoptosis, control of cell cycle regulation, and control of cellular growth and proliferation. The goal of the course is to prepare graduate students to critically evaluate published research in molecular oncology. Required for Cancer Biology Track.

### **CSBL 6069 Cancer Biology Core 2 (2)**

This course is designed to provide an overview of the molecular alterations identified in the most common cancer types in humans. The general guidelines on recent diagnosis and therapeutic advances in oncology will be presented. In addition, it will offer an overview on special populations affected by cancers or by less frequent but biologically informative cancers and basic concepts related to experimental tools relevant to cancer biology, including mouse models of tumors and molecular profiling. The conceptual notions on clinical trials of cancer drugs and the process of development of novel therapeutic drugs in cancer will be discussed. Required for Cancer Biology Track. Prerequisites: Cancer Biology Core 1.

### **CSBL 6165 Medical Genetics (3)**

This course provides an introduction to the basic concepts of medical genetics and current areas of medical genetic research. The course reviews basic genetic concepts including the principles of Mendelian and nontraditional inheritance, cytogenetics, molecular genetics, quantitative and population genetics, and discuss important medical aspects of genetic counseling and pedigree analysis, dysmorphology, cancer genetics and counseling for inherited cancers, developmental genetics, prenatal diagnosis, newborn screening, and pharmacogenetics. Diagnosis and current research toward treatment and cure of common genetic disorders affecting metabolism, reproduction, the endocrine system, the functioning of the eye and the nervous system are discussed. An important aspect of the course will be a discussion of ethical issues in medical genetics. A basic background in genetics, cell biology, and biochemistry is assumed. Prerequisites: A basic background in genetics, cell biology, and biochemistry.

### **CSBL 7014 Anatomy (1.5)**

This course provides the basic principles of human anatomy. Students have the opportunity to learn human anatomy as it relates to function through the study of bones, cadaver prosections, models, atlas drawings and photographs, and their own bodies. Concentration is on osteology, radiology, arthrology, neuromuscular, vascular, and basic systems anatomy as they apply to physical therapy. Course fees: Lab Assistance fee \$10 per hour Gross Anatomy Lab fee \$30.

### **CSBL 8010 Anatomy 2 (2)**

This course reinforces principles of human anatomy studied in CSBL 7014. Students study human anatomy as it relates to function through cadaver dissection. Concentration is on osteology, radiology, arthrology, neuromuscular, vascular, and basic systems anatomy as they apply to physical therapy. Course fees: Lab Assistance fee \$10 per hour Gross Anatomy Lab fee \$30 Human Materials fee \$865.

## **Nursing (NURS)**

### **NURS 5310 Organizational Systems and Administrative Strategies (3)**

This course examines contemporary influences, theories, principles, and functional strategies related to management/administration and organizational systems at the micro, meso, and macrosystem levels. The effects of external; and internal environmental changes on complex systems, role relationships, team building, planning, structure, communication, negotiation, and consultation in nursing and inter-professional systems are discussed. Prerequisites: NURS 5339 Corequisites: NURS 5339.

### **NURS 5318 Nursing and Health Systems Management (1.5)**

This is one of a series of graduate level courses that provides the foundation for nursing management of clinical units, departments, and service lines in health care systems. This course is designed to provide the knowledge and skills for an effective and efficient human resource system to patient care services at multiple levels from employment screening to ongoing development. The processes and skills for coaching individuals and groups and leading through consultation are emphasized. Relationship management and influencing behaviors are addressed. The components of the Magnet Hospital model and strategies, with evidence, are emphasized for excellence. Students emerge with an understanding of and ability to apply human resource principles and skills in the development of patient care staff and quality work environment to assure excellence in patient care delivery.

Prerequisites: NURS 5339 Corequisites: NURS 5339.

**NURS 5338 Advanced Pathophysiology (3)**

This course focuses on pathophysiological processes across the lifespan and the development of clinical reasoning skills that distinguish the relationship between normal physiology and specific system alterations produced by injury and disease. Particular attention will be given to etiology, pathogenesis, developmental and environmental influences, and clinical manifestations of major health problems. 3 clock hours class (45 hours class).

**NURS 6101 Advanced Mental Health Concepts: Clinical Applications (3)**

The focus of this course is developing advanced practice mental health nursing skills by providing holistic care through assessment, crisis intervention, pharmacological management, biological or other therapies, and consultation/referral. Clock Hours: 3 clock hours clinical (45 hours clinical).

**NURS 6132 Population State of the Science (1)**

This course provides a foundation for understanding of evidence-based clinical prevention and population care and services to individuals, families and aggregates/identified populations through the identification of key competencies and relevant and predictable learning opportunities in their practice settings.

**NURS 6210 Advanced Health Assessment and Clinical Reasoning (2)**

This course will build upon health assessment skills developed in the professional nurse's basic educational program. The theoretical and clinical basis for assessment in advanced practice will be developed. The process whereby the advanced practitioner utilizes comprehensive physical, psychosocial, and cultural assessment across the lifespan, to gather specific data relevant to common health problems, is demonstrated. Faculty and preceptors facilitate laboratory and clinical experiences that focus on assessment of clients and presentation of findings in a variety of settings. An undergraduate health assessment course or comparable experience is required. Clock Hours: A 45-clock-hour clinical practicum is required. Course Fees: Lab \$30  
Corequisites: NURS 6110.

**NURS 6220 Program Planning and Evaluation: Practicum (2)**

This course provides the opportunity to explore clinical or management problems in a variety of health care settings. The focus of this course is development of program planning and evaluation projects using analytical and problem-solving skills, processes, strategies, and evidenced-based practice. Students will be given the opportunity to work with an institutional based preceptor to develop theory-based interventions and evaluation strategies. Clock hours: 90 clock hours practicum. Prerequisites: NURS 5356, NURS 5306, and NURS 5307 Corequisites: NURS 6313.

**NURS 6250 Advanced Health Promotion, Health Protection, and Disease Prevention (2)**

Students analyze theories and research from nursing, health promotion, health protection and disease prevention. Family, human development, patient education and community are the foundation for exploring the phenomena of family focused care. Data grounded in epidemiological sources, health histories and family assessments are examined as the basis for identification of risk factors. Prerequisites: NURS 5306 and NURS 5307.

**NURS 6331 Advanced Financial Management (3)**

This course covers advanced financial management concepts relevant to managing the business of healthcare. Key concepts covered include principles of advanced financial management, interpretation of financial statements, regulatory requirements imposed by payers and

accreditors, advanced budgeting and variance analysis, forecasting, and productivity management. The role of the Administrative Nurse Manager in interprofessional financial planning for quality, safety, and financial stability will be addressed.

Prerequisites: NURS 5356 Corequisites: NURS 6203.

**NURS 6353 Transforming Complex Healthcare Systems For Quality and Safety (3)**

This course focuses on the analysis, synthesis, and application of science to address current and emerging problems related to patient care quality and safety within a healthcare system.

Organizational theories and culture, and the dynamic forces at microsystem, mesosystem, and macrosystem levels are explored. The unique role of advanced nursing in quality improvement and conceptualization and redesign of effective care delivery models that address gaps in science and delivery of patient care services will be explored. Clock hours: 45 clock hours class

Prerequisites: NURS 5339.

**NURS 7301 Methods For Evidence-Based Practice (EBD) Translational Science (1.5)**

This course focuses on analyzing evidence-based practice paradigms, quality improvement, and patient safety; appraising primary research and systematic review; and examining approaches to measuring care processes, organizational factors, nursing performance, and patient outcomes.

Clock hours: 3 clock hours class (45 hours class) Prerequisites: NURS 5306 and NURS 5307.

**NURS 7314 Nursing and Health Systems Administration (3)**

This course is designed to prepare the professional chief nurse executive to provide strategic direction for all aspects of nursing care and care delivery operations for multiple clinical departments, hospitals and service lines across the continuum in regional and/or national healthcare systems to provide value. Successful completion of PH 1690 as an alternate to NURS 7321. Prerequisites: NURS 7321, NURS 7301 and NURS 7323 Corequisite: NURS 7414.

**NURS 7321 Statistical Analysis for Quality Improvement and Health Delivery Systems (3)**

This course examines the concepts and techniques to develop, improve, and evaluate patient care and health care delivery systems from multiple perspectives including efficiency, effectiveness, and comparability. Students are provided with essential knowledge for evaluation of research to guide evidence-based practice at the highest level. This course provides an overview of the logic and appropriate use of statistical techniques most commonly reported in the research literature of the health professions. Students build on knowledge they have gained from basic statistics courses to develop advanced skills in interpreting and understanding common univariate and multivariate statistical approaches presented in published health care reports. Using a project-oriented approach, students are provided with statistical tools necessary to conduct state-of-the-art practice improvement projects and support leadership decisions. Prerequisite: Graduate Standing.

**NURS 7323 Design And Analysis For Evidence-Based Practice (EBP) Translational Science 2 (3)**

This course extends Evidence-Based Practice Translational Science 1 to refine the student's ability to integrate research and knowledge into practice and evaluate impact on healthcare quality and safety and patient outcomes. Students will have the opportunity to use advanced program evaluation research approaches and analytic methods to design and evaluate innovations in systems of care in terms of care processes and patient outcomes. The course emphasizes

appropriate and analytic approaches in translational science and explores ethical issues in translational science. Clock hours: 3 clock hours class (45 hours class)

Prerequisites: NURS 7301.

**NURS 7324 Healthcare Economics and Policy (3)**

This course prepares the student to lead improvements in health care and shape health policy through an understanding of macroeconomic principles in the health care market. Students will be given the opportunity to apply theoretical and empirical economic analysis to business and public policy issues in health care.

**NURS 5339 Leadership for Quality, Safety and Health Policy (3)**

The course focuses on the principles and theories germane to leadership in complex organizations, models, tools and processes to measure health care outcomes, and forces that influence health policy and nursing practice.

**NURS 5356 Financial and Economic Evidence in Health Care (3)**

This course focuses on principles of health care economics, third-party reimbursement, costing, budget types, process and monitoring, economic evaluation methods, and business plan importance, components and writing.

**NURS 6315 Informatics & Health Care Technologies (3)**

This course focuses on information systems and patient care technology, including database management systems and computer applications related to monitoring outcomes, quality improvement, safety and evaluating patient care technology.

**NURS 6317 Healthcare Information Systems and Patient Care Technology (3)**

This course is an introduction to the health care and nursing informatics and computing environment. It provides a basis for understanding the impact of information technology on health care practice and critical thinking in clinical decision making. Theoretical and applied approaches furnish a basis for understanding and participating in the use of informatics systems in health care and nursing. Emphasis is on the use of technology to access knowledge and to create science-based practice protocols for informed clinical decision making in health care and nursing.

**NURS 6380 Fundamentals of Epidemiology (3)**

This course is designed to study the distribution and determinants of health and disease in human populations. Improving health by altering personal and environmental risk factors will be a major focus. Epidemiological research using technology and public health informatics will be introduced.

**NURS 7226 Ethics of Nursing Science (2)**

The focus of this course is on the ethical imperative/implications in the role of the clinical nurse scientist. Current ethical theories are critiqued and the ethical implications of the major research paradigms are evaluated. Ethical issues arising from selected theoretical/research approaches are examined.

**NURS 7316 Statistical Analysis for Nursing Science (3)**

This foundational course focuses on statistics and computing skills that assist students to understand statistical methods, gain computing skills, interpret and perform basic statistical tests, and critique typical quantitative articles.

**NURS 7322 Healthcare Policy Analysis and Advocacy (3)**

This course focuses on analyzing, designing, implementing, and evaluating public policy process, engaging in policy decision-making process, participating in health services research, policy, and economic analysis, and political advocacy.

**NURS 7373 Nursing: Quantitative Research Methods 2 (3)**

This course presents modern and classical psychometrics for nursing science from the perspective of item response theory. Most of the course will cover classical test theory from the perspective of modern test theory. An introduction to binary item response theory will also be presented. The course will emphasize applications within the context of modern psychometric principles.

Prerequisites: NURS 7325, NURS 7226, NURS 7374, NURS 7310, NURS 7380, NURS 7375

Corequisites: NURS 7381.

**NURS 7374 Nursing-Content & Practice: Quantitative Research Methodology (1.5)**

Integration of the research process and qualitative and quantitative analysis, including concept mapping, operationalization of concepts, and appropriate statistical treatments, make up the content of this course. The course will incorporate identifying clinical research questions and developing study proposals for such questions. Clock Hours: 3 class hours.

**NURS 7375 Regression Models For Nursing Science (3)**

This course presents regression analysis at an intermediate level. Course will focus on regression for continuous variables: specification, estimation, testing, and diagnostics. Logistic regression for binomial and multinomial variables, log-linear regression for count variables, and proportional hazards regression for duration variables will be explored. An introduction to multilevel regression will occur. Prerequisites: Graduate standing.

**NURS 7377 Mixed Methods for Clinical Nurse Scientists (3)**

This course will cover the use of mixed methods, quantitative and qualitative, to address complex research questions in nursing and health care. Problems of trying to merge methods and practical strategies for accomplishing this successfully, as well as paradigmatic issues, will be discussed. Prior products developed in quantitative and qualitative methods classes to devise a mixed method proposal that integrates readings on mixed methods with the student's own research interests will be used. Prerequisites: NURS 7374 and NURS 7380.

**NURS 7380 Qualitative Inquiry for Clinical Nursing Research. (3)**

This course will introduce students to qualitative inquiry as an approach to knowledge discovery applicable to clinical nursing research. Students will analyze, compare, and contrast a variety of qualitative approaches including philosophical underpinnings, methodologies, and applications. Those approaches may include: Phenomenology, ethnography, grounded theory, case study, historical research, naturalistic inquiry, interpretive analysis, action research, and focus-group methods. Criteria for evaluating qualitative research reports to critique qualitative research studies will be utilized. The relationship between a clinical problem and specific research methods will be analyzed. Students will have the opportunity to develop research questions and analyze their applicability to specific clinical issues, and learn varied strategies for collecting and

analyzing qualitative research data. Prerequisites: NURS 7325, NURS 7226, and NURS 7310 Corequisites: NURS 7325, NURS 7226, and NURS 7310.

### **NURS 7382 Structural Equation Models For Nursing Science (3)**

This course presents structural equation modeling (SEM) for nursing science. The course will begin with a review of regression from an SEM perspective. The first major topic of the course will be path analysis, including model specification, methods of estimation, recursive and non-recursive models, direct, indirect, and total effects, methods of estimation, single and multi-group analyses, moderators and mediators, and the assessment of causality. The second major topic will be psychometrics from an SEM perspective, including congeneric test theory, reliability and stability, convergent and discriminant validity, and confirmatory factor analysis. The third major topic will combine the first two into structural equations, including model specification and identification, methods of estimation, second-order factor analysis, and the assessment of causal structure. Prior completion of Intermediate statistics is required to register for this course.

### **NURS 7383 Qualitative Methods 2: Application in Nursing Science (3)**

This course is designed to provide students an opportunity to conceptualize a research problem from a qualitative perspective, to study one specific method (grounded theory, ethnography, phenomenology, hermeneutics), and to practice qualitative approaches to data collection and analysis in that method. Students will have opportunities to write a mini-proposal guided by a qualitative research question and leading to a specific qualitative research approach to the problem. There will be opportunities for participating in Mock reviews of qualitative research proposals (either as investigator or reviewer). Students will have the opportunity to learn the IRB approval process with qualitative proposals and will have opportunities to develop pilot research strategies building to a dissertation proposal. Strategies will include interviewing, focus group, or participant observation following the selected method. Through this process students are required to practice and learn strategies and processes for conceptualizing and implementing a qualitative study guided by a specific qualitative methodology.

Prerequisites: NURS 7325, NURS 7226, NURS 7374, and NURS 7380.

## **Physiology (PHYL)**

### **PHYL 5042 Cardiovascular Physiology (1)**

This course explores the physiological mechanisms by which the cardiovascular system carries out its principle function. Mechanisms that produce and regulate cardiac pumping, organ blood flow, capillary fluid and solute exchange, and arterial blood pressure are examined. The nature and importance of various local, neural, and hormonal mechanisms are emphasized. Integrated control of cardiovascular function in situations requiring cardiovascular adjustments (e.g., exercise, blood pressure alterations) are also covered. Students may take the full series but are only required to take three out of the four courses (PHYL 5041, 5042, 5043, and 5044).

### **PHYL 5043 Respiratory & Renal Physiology (1)**

This course covers the physiology of respiratory and renal function in the human body. Our focus is on basic mechanisms of function, role in body homeostasis, as well as dysfunction of both systems associated with pulmonary and renal disease. Two sessions are set aside for discussion around significant advances in each field. One or more recently published articles will serve as the focus for each of these discussion sessions. Students may take the full series but are only required to take three out of the four courses (PHYL 5041, 5042, 5043, and 5044).



## **Clinical Investigation and Translational Science (TSCI)**

### **TSCI 5070 Responsible Conduct of Patient-Oriented Clinical Research (2)**

This interdisciplinary course is designed to train participants in the responsible conduct of patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) delineate a history of hallmark abuses of humans enrolled in clinical research; (2) describe the evolution of national and international codes and regulations guiding inclusion of human subjects in clinical investigations; (3) list the elements of informed consent and describe procedures and precautions for enrolling special populations into clinical investigation; (4) write a consent form in understandable language; (5) recognize different forms of scientific misconduct; (6) describe the role and processes of a peer review board to judge violations in research ethics; (7) develop strategies for self-assessment and validation of scientific objectivity in one's own research; and (8) recognize the ethical responsibilities and consequences of whistle blowing.

### **TSCI 5071 Patient-Oriented Clinical Research Methods (1)**

This interdisciplinary course is the first in a two-semester sequence designed to train participants in the conduct of patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) define a research question; (2) effectively conduct a systematic review of the scientific literature; (3) design strategies for recruitment into a study; (4) delineate strategies for minimizing bias in cross-sectional and retrospective studies; and (5) read and interpret research reports of cross-sectional and case-control investigations.

### **TSCI 5072 Patient-Oriented Clinical Research Biostatistics (1)**

This interdisciplinary course is the first in a two-semester sequence designed to train participants in the analysis and biostatistics of patient-oriented clinical research. Students will have the opportunity to learn and by the end of the course, be required to: (1) identify and summarize different categories of data; (2) set up and perform tests of hypothesis; (3) estimate sample sizes for survey and case-control studies; and (4) use statistical software packages to enter, summarize, graph, visualize, and analyze data.

### **TSCI 5074 Data Management, Quality Control and Regulatory Issues (2)**

This interdisciplinary course is designed to train participants in the necessary data management and quality control procedures required for the conduct of patient-oriented clinical research. It consists of three segments: (1) introduction to data management principles and standard practices; (2) development of the student's own mentored research; and (3) introduction to bioinformatics.

### **TSCI 5075 Scientific Communication (2)**

This interdisciplinary course is designed to train participants to write effectively in all aspects of conducting patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) recognize and avoid errors in grammar, punctuation, and usage that are common in scientific writing; (2) construct units of writing whose structure, style, and logical continuity allows instant and clear comprehension; (3) construct concise, informative titles, (4) develop clear, comprehensive abstracts for papers and grant proposals; (5) construct complete, well-rationalized sets of specific aims for grant proposals; and (6) effectively apply the 4-Point Rule (What's the question? How did we approach it? What happened? What does it mean?) to all forms of scientific writing.

## **Translational Science (MEDI)**

### **MEDI 5070 Responsible Conduct of Patient-Oriented Clinical Research (2)**

This interdisciplinary course is designed to train participants in the responsible conduct of patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) delineate a history of hallmark abuses of humans enrolled in clinical research; (2) describe the evolution of national and international codes and regulations guiding inclusion of human subjects in clinical investigations; (3) list the elements of informed consent and describe procedures and precautions for enrolling special populations into clinical investigation; (4) write a consent form in understandable language; (5) recognize different forms of scientific misconduct; (6) describe the role and processes of a peer review board to judge violations in research ethics; (7) develop strategies for self-assessment and validation of scientific objectivity in one's own research; and (8) recognize the ethical responsibilities and consequences of whistle blowing.

### **MEDI 5071 Patient-Oriented Clinical Research Methods 1 (2)**

This interdisciplinary course is the first in a two-semester sequence designed to train participants in the conduct of patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) define a research question; (2) effectively conduct a systematic review of the scientific literature; (3) design strategies for recruitment into a study; (4) delineate strategies for minimizing bias in cross-sectional and retrospective studies; and (5) read and interpret research reports of cross-sectional and case-control investigations.

### **MEDI 5072 Patient-Oriented Clinical Research Biostatistics 1 (2)**

This interdisciplinary course is the first in a two-semester sequence designed to train participants in the analysis and biostatistics of patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) identify and summarize different categories of data; (2) set up and perform tests of hypotheses; (3) estimate sample sizes for survey and case-control studies; and (4) use statistical software packages to enter, summarize, graph, visualize, and analyze data.

### **MEDI 5074 Data Management, Quality Control and Regulatory Issues (2)**

This interdisciplinary course is designed to train participants in the necessary data management and quality control procedures required for the conduct of patient-oriented clinical research. It consists of three segments: (1) introduction to data management principles and standard practices; (2) development of the student's own mentored research; and (3) introduction to bioinformatics.

### **MEDI 5075 Scientific Communication (2)**

This interdisciplinary course is designed to train participants to write effectively in all aspects of conducting patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) recognize and avoid errors in grammar, punctuation, and usage that are common in scientific writing; (2) construct units of writing whose structure, style, and logical continuity allows instant and clear comprehension, abstracts for papers and grant proposals; (5) construct complete, well-rationalized sets of specific aims for grant proposals; and (6) effectively apply the 4-Point Rule (What is the question? How did we approach it? What happened? What does it mean?) to all forms of scientific writing.

### **BIOC 5077 Presentation of Published Research (1)**

### **MEDI 6060 Patient-Oriented Clinical Research Methods 2 (2)**

This interdisciplinary course is the second in a two-semester sequence designed to train participants in the conduct of patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course be required to: (1) define criteria for inferring causation from observational studies; (2) design strategies for subject retention in a prospective study; (3) design strategies for monitoring progress in a randomized control trial; (4) delineate strategies for minimizing bias in cohort studies and randomized control trials; (5) compare and contrast the uses, strengths, and weaknesses of different clinical trial designs; (6) read and interpret research reports of cohort studies and randomized control trials; and (7) describe the steps in conducting a meta-analysis. Prerequisites: MEDI 5071

### **MEDI 6061 Patient-Oriented Clinical Research Biostatistics 2 (2)**

This interdisciplinary course is the second in a two-semester sequence designed to train participants in the biostatistical analysis and patient-oriented clinical research. Students will have the opportunity to learn to and by the end of the course, be required to: (1) perform a two-way analysis of variance and explain the results; (2) perform survival analysis; (3) compare and contrast the purpose and characteristics of different forms of interventional trials; and (4) plan the sample size, analysis, and stopping rules of a randomized clinical trial. Prerequisites: MEDI 5072.

### **MEDI 6064 Grantsmanship and Peer Review (1)**

The purpose of this elective course is to provide an overview of the peer review process for research proposals as well as the essential components of grant management. Lecture and assignment topics will include: (1) funding agencies, missions, deadlines, and instruction; (2) Institutional Grantsmanship Issues; (3) National Institutes of Health (NIH) Organization (Institutes, Councils, Centers, and Budgets); (4) NIH Awards and Study Sections; (5) process and communications with the NIH; (6) interpreting and responding to written critiques; (7) mock study section meeting; and (8) grantsmanship after funding.

### **MEDI 6066 Instrument Development and Validation (1)**

This elective course introduces methods to develop and evaluate self-report measures. The seminar is built on classical test theory with a focus on the practice of creative surveys. Participants should be able to: (1) estimate various forms of reliability; (2) demonstrate various forms of validity evidence; and (3) explain how statistical analyses may be used to inform the validation process.

### **MEDI 6067 Genetics and Genetic Epidemiology (1)**

The main objective of this elective course is to familiarize students with current concepts and methods used in patient-oriented genetic studies. The class is oriented toward all health professionals – no prior genetics coursework is required. Topics include a review of the human genome structure followed by lectures and discussion on current research areas such as genetic epidemiologic studies, applications of microarray technologies, and pharmacogenomics. By the end of the course, candidates will have had the opportunity to learn to: (1) articulate basic concepts and current analytical methods used for human genetics research; (2) identify and use relevant databases and data sources for genetics research; (3) interpret the literature and discuss current issues of human genetics research; and (4) understand the potential and current limits of personalized medicine.

**MEDI 6068 Cross-Cultural Adaptation of Research Instruments (1)**

This elective course introduces students to the concept of cross-cultural equivalence of research instruments – a prerequisite for making valid comparisons across two or more ethnic groups – and the process of cross-cultural adaptation used to achieve this equivalence. Students will have the opportunity to learn the multiple steps necessary to successfully cross-culturally adapt research instruments and how to assure content, semantic, technical, conceptual, and criterion equivalence of individual items and scales. A number of instruments used in cross-cultural research will be reviewed and critiqued with regard to their cross-cultural equivalence.

**MEDI 6100 Practicum in Institutional Care and Animal Use Committee (IACUC) Procedures (1)**

This elective course presents an in-depth introduction to the institutional program that provides oversight and regular review of projects that involve the care and use of animals. This includes consideration of the operational procedures of the Institutional Animal Care and Use Committee (IACUC) of the UT Health San Antonio at San Antonio. Course objectives are achieved through a combination of readings, monthly attendance at selected IACUC meetings, and discussions with faculty.

**MEDI 6101 Topics in Translational Science (1-3)**

This elective course addresses selected topics in translational science through a series of lectures, assigned readings, literature re-views, class presentations, and discussions with faculty.

**MEDI 6102 Practicum in Institutional Review Board (IRB) Procedures (1)**

This elective course presents an in-depth introduction to the institutional program that provides oversight and regular review of research projects that involve human subjects. This includes consideration of the operational procedures of the multiple Institution Review Boards (IRB) of the UT Health San Antonio at San Antonio. Course objectives are achieved through a combination of readings, monthly attendance at selected IRB meetings, and discussions with faculty.

**MEDI 6103 Selected Topics in Advanced Research Ethics (3)**

This elective course provides an in-depth understanding of a selected topic in research ethics. Students work independently to develop a detailed literature review specific to an area of research and are required to prepare a manuscript describing the results. Regular meetings with the Course Director will review progress towards course goals.

**DISCLAIMER: COURSE OFFERINGS, DESCRIPTIONS AND CREDIT HOURS ARE SUBJECT TO CHANGE. FOR THE MOST CURRENT INFORMATION, PLEASE REFER TO THE UNIVERSITY CATALOG AND THE SPECIFIC SCHOOL OR DEPARTMENT OFFERING A GIVEN COURSE OR PROGRAM OR THE OFFICE OF THE UNIVERSITY REGISTRAR.**

## Appendix B. Sequential Procedures Doctor of Philosophy degree

### Phase I - From matriculation through admission to candidacy

1. **Assignment of faculty advisor:** The Committee on Graduate Studies assigns a member of the graduate faculty as advisor to each student entering a program. The advisor serves as counselor on academic matters and monitors the student's progress in (a) successfully completing contingencies of admission and identifying specialization and elective course requirements of the program, (b) course completion and the comprehensive (qualifying) examination and (c) assists in selecting an area of research concentration or specialization.
2. **Program Plan:** No later than one month after students enter the program, they must meet with their academic advisor to complete an agreed upon program plan listing courses and proposed course sequencing and timeline for completion. The timeline should include the proposed completion date of required core, specialization and elective course work as well as tentative time frame for completion of the student's comprehensive qualifying examination.
3. **Approval of dissertation research advisor (dissertation mentor):** When the student selects the area of research concentration or specialization and the faculty member to serve as research mentor, the Committee on Graduate Studies reviews the proposed selections. If the selections are approved, the faculty member is designated by the Committee on Graduate Studies as the student's research advisor in concert with, or in replacement of, the original faculty advisor. The faculty advisor may, of course, be selected as the research advisor. During this period, the student's potential for productive and independent investigation is assessed by the research advisor.
4. **Compact and Milestone Agreement:** Not more than one month after the student selects a research mentor, a Compact and Milestone Agreements between the student and their dissertation research mentor are required. The student and mentor will discuss and sign the Compact and Milestone. The Compact and Milestone documents will be reviewed by the Program Director and/or COGS Chair of the respective program. Following this initial process, Milestone accomplishments should be reviewed on an annual basis by the Program Director and/or COGS Chair. If Milestones are not being adequately met, the Program Director and/or COGS Chair along with the supervising professor should create a plan of action to correct the deficiencies. If the issue(s) remain and/or are not adequately being resolved after six months, then the GSBS Dean's Office should be notified of the issue(s) and be provided with a proposed plan of action to ensure student success in the program.
5. **Qualifying examination:** The Comprehensive Qualifying Examination is comprehensive in nature and may be written, oral, or both. The Committee on Graduate Studies determines the format of the examination and the composition of the Qualifying Examination Committee, with the proviso that one member must *not* be a member of the graduate faculty of the student's program. The Qualifying Examination Committee administers the examination(s), evaluates the student's performance, and reports its judgment on whether the student passed or failed to the Committee on Graduate Studies.
6. **Admission to candidacy:** Recommendation by the Committee on Graduate Studies that the student be admitted to candidacy for the Doctor of Philosophy degree requires the following:
  - a. Satisfactory completion of all required courses; in exceptional cases, permission to proceed to Phase II without having completed all required courses can be granted by the Dean of the Graduate School.

- b. Cumulative grade point average of at least 3.0 in all coursework undertaken since matriculation in the program.
- c. Report by the Qualifying Examination Committee that the student has passed the examination.
- d. Report by the student's research advisor and other graduate faculty members, as appropriate, that the student has clearly evidenced the potential for productive and independent investigation.

If, in its overall evaluation of the eligibility of the student for admission to candidacy, the Committee on Graduate Studies is in favor of admission, it shall submit a Petition of Admission to Candidacy Form (GSBS Form 32) to the Dean for approval with documentation of satisfaction of the requirements listed above. Each research advisor is required to sign the form to certify her/his view of the student's potential for productive and independent investigation. The Dean may approve or disapprove the recommendation or request further documentation. When the Dean has approved admission of the student to candidacy, the candidate enters Phase II of the program.

### **Phase II - From admission to candidacy through granting of the degree**

1. **Selection of the dissertation research supervising professor:** No later than three months after the student's admission to candidacy, the member of the graduate faculty of the program who will serve as the supervising professor of the dissertation research shall be decided upon by mutual agreement among the candidate, the faculty member, and the Committee on Graduate Studies. Normally, the research advisor who guided the student's preliminary research activities continues as supervising professor, but this arrangement is not obligatory.
2. **Draft of dissertation research proposal:** The candidate shall identify a research question that will serve as a focus for the dissertation research. The candidate shall prepare a draft of a research proposal (i.e. concept paper) that specifies the research to be undertaken, its significance in the scientific field, and the general methods and techniques to be utilized. The proposal shall be submitted to the supervising professor for review and modification. Subsequent drafts of the proposal should then be submitted for review and modification to other faculty members who have knowledge and expertise in the area of the research proposal and who have been selected by mutual agreement among the candidate, the supervising professor, and the Committee on Graduate Studies. The final draft of the dissertation research proposal is subject to review and approval by the Committee on Graduate Studies, which may specifically designate a group of faculty members to review the proposal draft(s).
3. **Composition of the dissertation supervising committee:** After approval of the proposal by the Committee on Graduate Studies, the supervising professor and the candidate shall make recommendations to the Committee on Graduate Studies regarding the composition of the Supervising Committee for the dissertation research. The Supervising Committee must consist of at least five persons, as follows:
  - a. The supervising professor, who has primary faculty appointment at UT Health San Antonio and is a member of the program's graduate faculty in which the student is enrolled, designated as Supervising Professor and Chair of the Supervising Committee;
  - b. Three members must be members of the graduate faculty of the program in which the student is enrolled;

- c. One member must be from outside of UT Health San Antonio with no affiliation to the institution and should have expertise in or similar to the field of the proposed dissertation.
- d. Additionally, under certain circumstances and at the discretion of the GSBS dean, a representative from the Dean's office may be appointed to serve in an ex officio capacity on Supervising Committees.

The Committee on Graduate Studies may nominate additional members in categories (b), (c), and (d) if necessary. Nomination is contingent upon the willingness of the designated person to serve on the Supervising Committee. The composition of the Supervising Committee should, in principle, provide a group of research scientists who constitute an important resource to the candidate and her or his dissertation research. Their functions are, with the Supervising Professor, to guide the candidate through the dissertation research and to certify to the Committee on Graduate Studies that the candidate has, in fact, carried out a meritorious research investigation of the caliber appropriate for a PhD dissertation and, in their opinion, defended it satisfactorily.

- e. Upon selection of the supervising committee, the chair of the Committee on Graduate Studies (COGS) will submit to the Graduate School Dean's Office a completed GSBS Form 30 Recommendation for Approval of Dissertation Research Proposal and Supervising Committee. The student must provide the Graduate School Dean's Office an electronic copy of their dissertation proposal to accompany GSBS Form 30.
4. **Approval of the dissertation proposal and supervising committee:** The Graduate Faculty Council and the Dean will review the recommendation of COGS on the proposal and supervising committee. After approval by the Dean of both the proposal and the Supervising Committee, the candidate may register for their respective program's Dissertation course. Any subsequent change in the Composition of the Supervising Committee must be approved by the COGS and approved by the Dean, who will then report the change at a regularly scheduled GFC meeting.
  5. **Supervision of the dissertation research:** Within one month after formal approval of the Supervising Committee, the Supervising Professor shall convene the Supervising Committee to discuss with the candidate the progress of the dissertation research and the projected future work. A formal dissertation prospectus may be required. At appropriate intervals thereafter (at least every six months), the Supervising Committee shall meet with the candidate for presentation of progress reports (written and/or oral), so that current status of the research may be evaluated, and direction of future work planned. If the external Committee member is unable to attend these meetings, it is the responsibility of the candidate and the Supervising Professor to provide this member with progress reports for review and recommendations. It is essential that the Supervising Committee be fully informed of the research progress and be able to provide continued supervision throughout and that the Committee on Graduate Studies receive reports of the research progress from the Supervising Committee after each of its meetings with the candidate. The Supervising Committee and/or the Committee on Graduate Studies may approve or direct alterations in the research plans within the general context of the dissertation proposal. Major changes in the candidate's research status (such as selection of a new Supervising Professor, new Supervising Committee members, or a new research question) must be reported to the Graduate Faculty Council and the Dean for consideration.
  6. **Submission of the dissertation:** After agreement by the members of the Supervising Committee that the research has progressed sufficiently for submission of the dissertation, a

draft of the dissertation shall be submitted to the Supervising Professor and then to all other members of the Supervising Committee for review and recommendations for modification of content. An electronic copy will also be submitted to the Graduate School Dean's Office for review of formatting. It is the responsibility of the candidate to follow the guidelines of preparation of the dissertation provided by the Graduate School Dean's Office in the *Instructions for Preparation and Submission of Electronic Theses, Dissertations and Dissertation Abstracts*. If the alternative chapter format is preferred, the candidate must obtain approval for such format from the Supervising Committee and the Committee on Graduate Studies. The candidate also has the responsibility to ensure adequate time for review and modification of the dissertation in accordance with the schedule of deadlines provided each term by the Graduate School Dean's Office.

7. **Final oral examination:** When the Supervising Committee judges the dissertation to be suitable for defense, the Supervising Professor shall be responsible for submitting a signed *Request for Final Oral Examination Form* (GSBS Form 40) through the Committee on Graduate Studies to the Dean and request scheduling of the Final Oral Examination. Three copies of the Abstract and Vitae (stapled together) should accompany the *Request for Final Oral Examination Form* at the time it is submitted to the Graduate School Dean's Office. Public announcement of the Final Oral Examination is made by the Graduate School Dean's Office. This examination is conducted by the Supervising Committee with the Supervising Professor as chair. Interested persons may attend the public defense and have the right to question the candidate. After the public defense, the Final Oral Examination continues with an intensive oral examination by the Supervising Committee that is not customarily open to the public. The Supervising Committee members vote on the candidate's success or failure on the Final Oral Examination; more than one vote for failure signifies failure on the examination. The Supervising Committee submits the *Report on Final Oral Examination Form* (GSBS Form 43) to the Committee on Graduate Studies. In the event of a failing performance by the candidate, the Supervising Committee shall also submit to the Committee on Graduate Studies a recommendation regarding remedial action; in such case, the Committee on Graduate Studies shall decide on the recommendation or other action to be taken. In the event of a successful performance by the candidate, the Committee on Graduate Studies shall vote on whether to approve the recommendation by the Supervising Committee for granting of the degree.
8. **Recommendation for granting of the degree:** If the Committee on Graduate Studies approves the favorable recommendation by the Supervising Committee, the Chair of the Committee on Graduate Studies shall so indicate by signature on the *Report on Final Oral Examination* and submit the Report to the Graduate Faculty Council for consideration. The candidate shall submit to the Graduate School Dean's Office the final electronic version of the dissertation either by e-mail or on a disk or USB drive. The dissertation Approval Page signed by the Supervising Professor and Committee members must also be submitted to the Graduate School Dean's Office. When the Report, the Approval Page and the electronic dissertation in final form have been received in the Graduate School Dean's Office, the Graduate Faculty Council will consider the recommendation for granting of the degree. If the Council does not approve the recommendation, it will refer the matter to the Committee on Graduate Studies with a recommendation for remedial action. If the Council does approve the recommendation, the Dean of the Graduate School of Biomedical Sciences will notify the Office of the University Registrar that the candidate has fulfilled all requirements of the Graduate School of Biomedical Sciences for the degree of Doctor of Philosophy. Upon the candidate's certification by the President, the degree is conferred by the Board of



Regents of The University of Texas System. (See “Registration for Dissertation,” “Registration for Final Term,” and “Graduation” previously discussed in this section.)

## Appendix C: Faculty as Students – PhD in Health Sciences

1. Admissions.
  - a) The Graduate School of Biomedical Sciences (GSBS) provides administrative oversight for PhD programs at UT Health San Antonio. The admissions process for *all applicants* (faculty and non-faculty) to this program will be overseen by Dr. Nicquet Blake, Associate Dean for Admissions of the Graduate School of Biomedical Sciences. Dr. Blake will also serve as an ex-officio member of the admissions committee.
  - b) No preferential treatment will be provided to faculty in the admissions process. All applicants to the program will be treated in the same manner by the program admissions committee and faculty status provides no preferential treatment for admissions consideration. That said, a primary purpose of the PhD program is to prepare future faculty, researchers and leaders in allied health and all candidates should demonstrate the potential to become allied health faculty at colleges and universities; current faculty have demonstrated that “potential”.
  - c) Faculty shall obtain written approval from their Department Chair and respective Dean prior to beginning the program and enrolling in course work. Such approval should be submitted to the Chair of the program Admissions Committee with a copy to the program director.
  - d) Nontenure track faculty may be eligible for application and admission to the PhD in Health Sciences Program.
  - e) Tenured and tenure-track faculty members are currently restricted from pursuing an advanced degree at UTHSA (HOP 3.2.5). With appropriate permission, exceptions to this policy may be permitted.
  - f) Faculty accepted into the program are considered students regarding all aspects of the educational program and are thus bound by all program and university rules and regulations pertaining to their responsibilities and obligations as students.
2. Faculty who take courses under this policy must continue to meet the full responsibility of their University positions. Faculty may attend classes during their normal working hours, provided they have received prior approval from their immediate supervisor and have arranged to make up the work in any time away from regular hours of business. A supervisor may deny a faculty member’s request to attend classes during normal working hours.
3. A faculty member’s department chair or immediate supervisor cannot serve as the student faculty member’s mentor or major advisor.
4. Grievance Procedures
  - a) PhD program grievance policies are administered by the Dean of the Graduate School for Biomedical Sciences and overseen by the Associate Dean for Academic Affairs of the GSBS. The appeals procedures for faculty as students are the same as for all other students enrolled in the program.
  - b) Student appeals of course grades and other academic matters for all students in the program shall be made in the following sequence:
    - i. Initial appeal should be directed to the course instructor if the appeal does not relate directly to a specific course and instructor, the appeal will be initially directed to the program director.
    - ii. An unsatisfactory resolution of the appeal by the course instructor may be appealed to the program director.

- iii. An unsatisfactory resolution of the appeal by the program director may be appealed to the Committee on Graduate Studies (COGS). This committee includes the Associate Dean for Academic Affairs of the Graduate School for Biomedical Sciences.
  - iv. An unsatisfactory resolution of an appeal to the COGS may be appealed to the Dean of the Graduate School of Biomedical Sciences. Decisions of the Dean are final.
- c.) All students in the program will follow the policies regarding progression, probation, and dismissal as described in the Program Handbook, GSBM policies and GSBM catalog including faculty as students.
- i. Student dismissal may be appealed following the academic grievance process for all students as described in the Program Handbook.
  - ii. In the event of an unsatisfactory resolution of the appeal, the final stage of the grievance process is the same for all students and consists of an appeal directly to the Dean of the Graduate School for Biomedical Sciences.
5. Employee Evaluations. Evaluations of faculty as *employees* will be made independently of their performance as students in courses or the PhD program.