UNT Health FORT WORTH

COLLEGE OF BIOMEDICAL AND TRANSLATIONAL SCIENCES

Structural Anatomy & Rehabilitation Sciences Discipline Handbook 2025-2026

Regardless of the discipline, each CBTS traditional graduate student (MS or PhD) will receive the degree of Biomedical Sciences. The discipline is listed on the transcript as the Major.

The information provided in this document serves to supplement the requirements of the College of Biomedical and Translational Sciences detailed in the UNT Health Fort Worth Catalog with requirements specific to the discipline of Structural Anatomy and Rehabilitation Sciences.

Table of Contents

Structural Anatomy and Rehabilitation Sciences Discipline

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Graduate Faculty: Cho; Cook; Crowe; Gonzales; Lesciotto; Lovely; Maddux; Menegaz; Patterson; Perchalski; Tovar-Vidales.

Structural Anatomy and Rehabilitation Sciences (STARS) focuses on the integration of anatomical form with biomechanical function using advanced experimental, computational, and clinical tools. Major research foci in the STARS discipline include: (1) functional morphology or the study of form-function relationships, evolutionary/adaptive significance, and mechanical behaviors of musculoskeletal tissues; (2) biomechanics, movement science, and neuromuscular integration; (3) clinical anatomical studies linked to applications in orthopedics and physical therapy; (4) the analysis, design, and/or development of rehabilitation protocols, assessment tools and techniques, assistive devices, and instrumentation used in rehabilitation practice; and (5) studies of educational pedagogy in anatomy/movement science through the development of unique educational tools, techniques, and assessment strategies. STARS offers research opportunities, coursework, and teaching experiences that will develop and train students who will be qualified to serve as faculty members, researchers, and clinicians in various departments at health science centers, universities, and other research organizations.

All students entering the discipline will complete an integrated biomedical science core curriculum that includes fundamental principles of biochemistry, cellular and molecular biology, microbiology and immunology, pharmacology, physiology, and neurobiology. Beginning with the second semester, students will enroll in additional advanced courses for the discipline such as Applied Biomechanics, Structural Anatomy of the Musculoskeletal System, Structural Neuroscience, and other advanced elective courses, to be completed during their graduate career. Students are required to participate in seminars, work in progress (WIP) presentations, and journal club for the duration of their graduate career. Students will conduct original, publishable research and will be expected to present their results at the annual UNTHSC Research Appreciation Day (RAD) and at national scientific conferences.

The completion of the M.S. degree typically requires two to three years; the Ph.D. degree is generally completed in four to five years. Graduates with advanced degrees typically find employment in higher education, industry and government agencies.

Structural Anatomy and Rehabilitation Sciences Discipline Faculty

Graduate Faculty Membership Categories: *Associate members of the Graduate Faculty are able to serve as members of thesis or dissertation advisory committees, as major professors (chairs) or co-chairs on thesis advisory committees, and as co-chair on dissertation advisory committees with a full member as chair. Full members of the Graduate Faculty are able to serve as members of thesis or dissertation advisory committees, and as major professors (chairs) or co-chairs on thesis or dissertation advisory committees.*

Elizabeth O. Cho, Ph.D.
Assistant Professor, Physiology and Anatomy
Associate Member, Graduate Faculty

Dr. Cho's research examines patterns of cranial and postcranial anatomical variation in modern human populations. She explores the influence of climate and neutral evolutionary forces on male and female body form through the combination of osteometric, weather, and genetic data. This whole-body approach allows for a better understanding of how the entire human form has evolved in response to different environmental conditions, particularly in East Asia. As most ecogeographic studies center on male body form, Dr. Cho aims to further improve understanding of climate's selective pressure on females, elucidate potential sex-specific patterns of adaptation, and clarify the relationship between dimorphism, body size, and climate through the inclusion of both sexes in research. She has recently expanded her focus to living individuals. Dr. Cho's current projects center on testing potential universal adaptations to extreme environments and establishing whether variation in skeletal structure and soft tissue anatomy can be linked to how individuals thermoregulate in different climates.

Rebecca W. Cook, Ph.D.
Assistant Professor, Physiology and Anatomy
Associate Member, Graduate Faculty

Dr. Cook's research focuses on the biomechanics and functional morphology of the human pelvis using experimental methodology. Her research program involves two distinct but interconnected topics. 1) Dr. Cook investigates the evolution of the hominin pelvis, specifically around the transition from the Pliocene to the Pleistocene. Using finite element analysis, she investigates the mechanical response of reconstructed hominin pelves to stimuli associated with proposed behavioral adaptations. 2) Dr. Cook collaborates with surgical orthopaedic oncologists to explore the functional effects of orthopaedic surgical interventions, with the overarching goal of improving the biomechanical efficiency of endoprostheses. This clinical research integrates knowledge of hominin pelvic evolution with experimental techniques like gait analysis and finite element analysis.

Nicole M. Crowe, M.S.
Lecturer, Physiology and Anatomy
Associate Member, Graduate Faculty

Instructor Crowe's primary role involves teaching prosection and dissection-based gross anatomy courses to professional and graduate students. Her research interests revolve around using specialized histological staining techniques to visualize both normal and pathologic human tissues, with a particular focus on characterizing cardiovascular disease processes. Her expertise encompasses various histological techniques, including: tissue processing, embedding, microtomy, staining (special and IHC), and slide preparation for both hard and soft tissues. Furthermore, she coordinates numerous anatomy lab outreach events for K-12 and college groups in the DFW area.

Lauren A. Gonzales, Ph.D.
Assistant Professor, Physiology and Anatomy
Full Member, Graduate Faculty

Dr. Gonzales' research program is aimed at understanding how and when key changes in primate sensory anatomy occurred during primate and anthropoid evolution. Her approach uses comparative anatomy (via CT scans) and ecology of living animals as a reference to reconstruct the functional and adaptive implications of anatomical and behavioral changes in extinct species. Currently, this work centers on two primary areas of study: the semicircular canals of the inner ear and the evolution of the brain.

She is also a field paleontologist with two research sites in Peru (Peruvian Amazonia) and Kenya (Maboko Island). These sites are aimed at recovering primate and vertebrate fossils during the Middle Miocene. Both localities document a critical period known as the Middle Miocene Climacic Optimum (MMCO), a brief period of global warming followed by a sharp drop in temperatures and increased aridification. At this time many modern taxa, including primates and rodents, make a first appearance. As part of this work, the Gonzales lab has begun a large mass digitization project aimed at creating a 3-dimensional archive of fossils collected at both sites. The goal is to expand this part of the project into outreach workshops aimed at introducing free digital anatomy collections to rural communities and classrooms.

Kate M. Lesciotto, Ph.D., J.D.
Assistant Professor, Physiology and Anatomy
Full Member, Graduate Faculty

Dr. Lesciotto's research focuses on forensic anthropology. Her current research projects and interests include: (1) Sex estimation from unidentified skeletal remains. This project is currently co-funded by the National Science Foundation and the National Institute of Justice and aims to

quantify variation throughout the human skeleton by collecting data from modern, documented skeletal collections in the US. Novel statistical models are being explored to integrate metric and morphological data types to create a new method for sex estimation. (2) Improving biological profile estimation through machine learning and artificial intelligence. Dr. Lesciotto is a co-PI on the collaborative MOSAIC project funded by the NIJ to use advanced statistical models to take a noncompartmentalized approach to estimating all biological profile parameters. (3) Intersection of forensic anthropology and the US legal system. Dr. Lesciotto's interest focuses on the Daubert standard for the admissibility of expert witness evidence and how this standard has affected the field of forensic anthropology. In addition to her research, Dr. Lesciotto is a Diplomate with the American Board of Forensic Anthropology (#165). She has provided consulting services for law enforcement agencies within Texas and works with external agencies and institutions to provide training to students, educators, and law enforcement personnel.

Rehana S. Lovely, Ph.D.
Assistant Professor, Physiology and Anatomy
Associate Member, Graduate Faculty

Dr. Lovely's research focuses on anatomical variation and its relationship to pathology and clinical practice. Additionally, she is interested in conducting research on anatomy education, particularly within community outreach programs and medical student education. Dr. Lovely is actively involved in outreach programs supported by the Center for Anatomical Sciences. These programs aim to promote science and medicine as future career choices for K-12 and college students by exposing them to human anatomy within a medical and/or graduate school environment.

Scott D. Maddux, Ph.D.
Associate Professor, Physiology and Anatomy
Full Member, Graduate Faculty

Dr. Maddux's research focuses on human evolution during the Middle and Late Pleistocene with an emphasis on Neandertal and modern human craniofacial anatomy. In particular, he is interested in the developmental, biomechanical, and stochastic processes which produced the characteristic midfacial prognathism of Neandertals and orthognathism of modern humans. Related to these issues, he has corollary interests in patterns of human craniofacial allometry, integration, sexual dimorphism, and eco-geographic variation. To investigate these topics, the Maddux laboratory employs multiple techniques and approaches, including medical imaging and laser scanning modalities, linear and geometric morphometrics, and experimental modeling in non-human species. Current research projects are primarily concentrated in two main areas; the influence of climatically-adaptive variation in human upper respiratory tract anatomy on overall craniofacial morphology; and the "self-domestication" hypothesis as a model for

explaining facial retraction as an evolutionary byproduct of selection for increased social tolerance.

Rachel A. Menegaz, Ph.D.
Associate Professor, Physiology and Anatomy
Full Member, Graduate Faculty

Dr. Menegaz's research explores the growth and function of the skull and feeding apparatus. The biomechanical demands imposed by dietary composition are known to affect chewing behavior and joint kinematics and, over time, the growth trajectories of the craniofacial skeleton and its associated soft tissues (joint cartilages, muscles of mastication, etc.). By modulating diet, we are able to affect the overall growth of these tissues, dental eruption and occlusion, biomineralization of the cranial skeleton, and the structure and physiology of masticatory muscles. She is particularly interested in how early life history events (such as weaning and dental eruption/replacement) affect feeding, growth, and adult morphological outcomes. Current research themes include: (1) Variation in maturation rates among tissues of the masticatory complex and how this affects feeding performance and plasticity. What happens during the transition between infant-like suckling and adult-like chewing, and what are the structural and behavioral constraints that limit efficient feeding during early childhood? (2) The role of type I collagen in the growth of the craniofacial skeleton. How do collagen disorders, such as *osteogenesis imperfecta*, affect the facial phenotype? What behavioral and/or pharmaceutical interventions are effective in recovering the phenotype and function in these disorders? More information about her research can be found at www.menegazlab.com.

Dr. Menegaz is involved in outreach activities through the Center for Anatomical Sciences. She is the director of the Summer Opportunities in Anatomy Research (SOAR) undergraduate internship program. She is also the director of outreach programs for the Texas Academy of Biomedical Sciences (TABS), a Fort Worth ISD precollegiate high school.

Bern Perchalski, Ph.D.
Assistant Professor, Physiology and Anatomy
Associate Member, Graduate Faculty

Dr. Perchalski's research centers on the kinematics of locomotion and early primate adaptations for arboreal environments. Dr. Perchalski utilizes comparative experimental methodology and has worked with numerous species of strepsirrhines at the Duke Lemur Center. Their research on living animals acts to demonstrate the relationship between morphology, body mass, and locomotor behavior in response to specific environmental stimuli. Currently, Dr. Perchalski is most interested in how primates manage the rotational forces of torque as they descend steep supports. In addition to experimental research, Dr. Perchalski has paleontology field experience working in early to middle Eocene deposits in Wyoming and has visited several museum

collections to study early adapiforms and extant lemurs. Dr. Perchalski has also published with colleagues on the response of trabecular bone to repetitive loading behaviors and the ontogenetic emergence of asymmetry in human long bones.

Rita M. Patterson, Ph.D.

Professor, Family and Osteopathic Manipulative Medicine
Full Member, Graduate Faculty

Dr. Patterson's background is in biomedical engineering, with specific training and expertise in applied research in Orthopaedics, human performance, and rehabilitation. She has a unique perspective that can bridge and facilitate technology development in clinical settings and applications. In the department of Orthopaedic Surgery and Rehabilitation at the University of Texas Medical Branch in Galveston TX, she had a successful partnership for 20 years with a hand surgeon investigating the anatomic, biomechanic and kinematics of the carpal bones and the upper extremity. She also worked closely with upper extremity physical therapists and rehabilitation science specialists to understand hand function. At UNTHSC, Dr. Patterson works in the Human Movement Performance laboratory. This lab is devoted to improving knowledge of musculoskeletal function in order to assist physicians in the diagnosis and treatment of medical problems. The goals include improved clinical measurements of biomechanical function, objective methods of evaluation, treatment, and therapy, and mathematical/computer models of muscle, joint, and bone mechanics.

Tara Tovar-Vidales, Ph.D.

Instructor, Physiology and Anatomy
Associate Member, Graduate Faculty

Dr. Tovar-Vidales' research centers on understanding the process of glaucomatous remodeling of the optic nerve head (ONH). Glaucoma is a leading cause of visual impairment and blindness globally. Her research has focused on factors involved in the pathogenesis of glaucoma, including profibrotic factors such as transforming growth factor beta-2 and epigenetic modifiers (miRNAs). Methods utilized in the laboratory include cellular and molecular biology techniques using primary cells derived from human donor eyes.

Her current research is to understand the role of miRNAs in the ONH between individuals of African and European descent. Individuals of African descent are more susceptible to glaucoma than those of European descent, although the reasons for this disparity remain unclear. This research is significant because the knowledge gained studying the role of miRNAs may contribute to novel therapies for glaucoma treatment.

Dr. Tovar-Vidales teaches and trains medical and graduate students. She also engages in outreach programs, including the Texas Academy of Biomedical Sciences (TABS) and the Joint Admission Medical Program (JAMP) at UNTHSC.

Requirements

The requirements below are in addition to the CBTS requirements listed in the CBTS Degree Programs chapter of the UNTHSC Catalog.

A student who receives not more than one "C" in the first semester (BMSC 6201, 6202, 6203, or 6204) and maintains an overall GPA of 3.0 or better after the first semester of graduate study will be allowed to join the Structural Anatomy and Rehabilitation Sciences discipline. Ph.D. students in STARS who are in good academic standing will take the Oral Qualifying Examination in the fall of Year 2, following the successful completion of the discipline-specific required courses.

I. Required Courses

STARS discipline-specific required courses
PHAN 6308 (Applied Biomechanics) (offered Spring)
PHAN 6340 (Structural Anatomy of the Musculoskeletal System) (offered Fall)
PHAN 5630 (Structural Neuroscience) (offered Fall)

A grade of "A" or "B" in these courses is required. A student who receives a "C" in one of the discipline-specific required courses, but who is otherwise in good academic standing with an overall GPA of at least 3.0, will be allowed to remediate the course once. A student who receives two or more "C's" in the discipline-specific required courses must retake those courses in their entirety the following year. A Ph.D. student must receive an "A" or "B" in these courses, or successfully remediate or retake the courses, before taking the Oral Qualifying Examination.

II. Seminar Course, Work-in-Progress (WIP), and Journal Club

PHAN 5130 – Seminars in Structural Anatomy & Rehabilitation Sciences
PHAN 6150 – Structural Anatomy & Rehabilitation Sciences Journal Club

Students are required to register for the Seminars in Structural Anatomy & Rehabilitation Sciences course (PHAN 5130) a minimum of one time before advancing to candidacy, preferably in the spring of Year 1. Starting in Year 2, all M.S. and Ph.D. students are expected to present their research in the Seminars course a minimum of once per year as a "work in progress" (WIP).

All STARS students are required to register for a journal club course (PHAN 6150) during every long semester beginning in the spring of year 1. Once M.S. students register for Thesis (BMSC 5395) or Ph.D. students register for Doctoral Dissertation (BMSC 6395), they are no longer required to register for a journal club course; however, senior students are still expected to attend and participate in the journal club.

III. Advanced Elective Courses

The degree plan must include a minimum of 3 SCH of advanced courses for M.S. students and 6 SCH of advanced courses for Ph.D. students in addition to the STARS-discipline specific required courses. Elective courses may be chosen from the following (courses from other departments or disciplines can be substituted according to the research interests of the student):

Course	Title	Semester	SCH
PHAN 5201	Histology	Fall	2
PHAN 6308	**Applied Biomechanics***	Spring	2
PHAN 5501	Gross Anatomy (with prosection labs)	Spring	5
PHAN 5402	Structural Anatomy (Online) (with virtual labs)	Spring	4
PHAN 6204	Embryology	Spring	1
Dissection-Based Structural Anatomy Course Sequence (Listed Chronologically)			
PHAN 6340	**Structural Anatomy of the Musculoskeletal System***	Fall	4
PHAN 5630	**Structural Neuroscience***	Fall	2
PHAN 5132	Structural Anatomy of the Cardiopulmonary System	Fall	1
PHAN 5134	Structural Anatomy of the Human Digestive and Renal Systems	Fall	1
PHAN 5131	Structural Anatomy of the Human Reproductive System	Spring	1

Required course for all STARS students.

Other

Students may take courses from other programs as electives with consent from the major professor and the STARS graduate advisor. Students are encouraged to seek out Special Problems (BMSC 5390/6390) courses to strengthen their knowledge and application of biomedical sciences.

IV. Individual research and Thesis/Dissertation Courses

Course	Title	Minimum Hours Required for Degree	Maximum Hours Applied to Degree
BMSC 5998	Individual Research for M.S. Students	1-6 SCH	12 SCH
BMSC 6998	Individual Research for Ph.D. students	6 SCH	20 SCH
BMSC 5395	Thesis (M.S. students)	3 SCH	6 SCH
BMSC 6395	Doctoral Dissertation (Ph.D. students)	6 SCH	30 SCH

Once a PhD student has advanced to candidacy, they must enroll in a minimum of 2 SCH in BMSC 6395 (Doctoral Disseration) to maintain full-time enrollment status.

V. Teaching Electives

PHAN 6100 – Teaching Practicum (1 SCH)

The Teaching Practicum course provides training and experiences in didactic (classroom) teaching. The major professor of the enrolled student serves as the course director/instructor of record for the course. Students will complete a certificate in Preparing to Teach Online (PTO) from the Division of Academic Innovation, and deliver didactic content (lectures and Q&A/application sessions). Students interested in education and teaching are encouraged to take PHAN 6100. All students interested in academic careers are encouraged to take this course.

Teaching Assistanceships

Students may also serve as teaching assistants (TAs) for UNTHSC courses with anatomy laboratory components. All Ph.D. students are required to serve as TAs a minimum of once per year. Students interested in education and teaching are encouraged to serve as a TA more regularly. Students will be assigned laboratory teaching duties by CBTS and the Center for Anatomical Sciences.

Sample Degree Plans

I. Master of Science

The typical degree plan leading to the M.S. degree is outlined below. The degree plan may vary depending on availability of course offerings in a given semester and each student's background and progress toward the thesis project. This is a template and should be modified accordingly.

M.S. Degree Plan for Structural Anatomy and Rehabilitation Sciences Track		
Year 1: Fall		
BMSC 6201	Fundamentals of Biomedical Science I	2
BMSC 6202	Fundamentals of Biomedical Science II	2
BMSC 6203	Fundamentals of Biomedical Science III	2
BMSC 6204	Fundamentals of Biomedical Science IV	2
BMSC 5150	Lab Rotations (1 SCH; each student will register for 2 rotations)	2
BMSC 6200	Experimental Design and Biostatistics	2
Milestones	*Change of Discipline; Designation of Major Professor*	0
	Total	12 SCH
Year 1: Spring		
BMSC 5160	Biomedical Ethics	1
BMSC 5998	Individual Research	0-5
PHAN 5130	Seminars in STARS	1
PHAN 6150	STARS Journal Club	1
PHAN 6308	Applied Biomechanics	2
ELECTIVES	Recommended: PHAN 5501 (5 SCH)	0-5
Milestones	*Designation of Advisory Committee; Degree Plan*	0
	Total	12 SCH
Year 1: Summer		
BMSC 5998	Individual Research	5
BMSC 5108	Transferable Skills	1
	Total	6 SCH
Year 2: Fall		
BMSC 5998	Individual Research	0-2
PHAN 6150	STARS Journal Club	1
PHAN 6340	Structural Anatomy of the Musculoskeletal System	4
PHAN 5630	Structural Neuroscience	2
ELECTIVES	Recommended: PHAN 5132 (1 SCH), PHAN 5134 (1 SCH)	0-2
Milestones	*Research Proposal*	0

	Total	9 SCH
Year 2: Spring		
BMSC 5215	Principles of Scientific Communication	2
PHAN 6150	STARS Journal Club	1
BMSC 5998	Individual Research	1-7
ELECTIVES	Recommended: PHAN 5131 (1 SCH)	0-1
Milestones	*Declaration of Intent to Graduate*	0
	Total	9 SCH
Year 2: Summer		
PHAN 6100	Teaching Practicum (elective)	0-1
BMSC 5395	Thesis	5-6
Milestones	*Declaration of Intent to Defend*	0
	Total	6 SCH

II. Doctor of Philosophy (Ph.D)

The typical degree plan leading to the Ph.D. is outlined below. The degree plan may vary depending on availability of course offerings in a given semester and each student's background and progress toward the dissertation. This is a template and should be modified accordingly.

Ph.D. Degree Plan for Structural Anatomy and Rehabilitation Sciences Track		
Year 1: Fall		
BMSC 6201	Fundamentals of Biomedical Science I	2
BMSC 6202	Fundamentals of Biomedical Science II	2
BMSC 6203	Fundamentals of Biomedical Science III	2
BMSC 6204	Fundamentals of Biomedical Science IV	2
BMSC 6150	Lab Rotations (each student will register for 2 rotations)	1 (2)
BMSC 6200	Experimental Design and Biostatistics	2
Milestones	*Change of Discipline; Designation of Major Professor*	0
	Total	12 SCH
Year 1: Spring		

BMSC 5160	Biomedical Ethics	1
BMSC 5998	Individual Research	2-4
PHAN 5130	Seminars in STARS	1
PHAN 6150	STARS Journal Club	1
PHAN 6308	Applied Biomechanics	2
ELECTIVES	Recommended: PHAN 5501 (5 SCH)	0-5
Milestones	*Designation of Advisory Committee; Degree Plan*	0
	Total	12 SCH
Year 1: Summer		
BMSC 6998	Individual Research	5
BMSC 5108	Transferable Skills	1
	Total	6 SCH
Year 2: Fall		
BMSC 6998	Individual Research	0-5
PHAN 6150	STARS Journal Club	1
PHAN 6340	Structural Anatomy of the Musculoskeletal System	4
PHAN 5630	Structural Neuroscience	2
ELECTIVES	Recommended: PHAN 5132 (1 SCH), PHAN 5134 (1 SCH)	0-2
Milestones	*Oral Qualifying Exam*	0
	Total	12 SCH
Year 2: Spring		
BMSC 5215	Principles of Scientific Communication	2
BMSC 6102	Grant Writing	1
BMSC 6998	Individual Research	7-8
PHAN 6150	STARS Journal Club	1
ELECTIVES	Recommended: PHAN 5131 (1 SCH)	0-1
	Total	12 SCH
Year 2: Summer		
BMSC 6998	Individual Research	4
PHAN 6100	Teaching Practicum	1
BMSC 6101	Responsible Conduct of Research	1
Milestones	*Research Proposal*	0
	Total	6 SCH
Year 3: Fall		
BMSC 6395	Doctoral Dissertation	2

BMSC 6998	Individual Research	1-4
ELECTIVES	Electives	0-3
	Total	6 SCH
Year 3: Spring		
BMSC 6395	Doctoral Dissertation	2
BMSC 6998	Individual Research	4
ELECTIVES	Electives	0-3
	Total	6 SCH
Year 3: Summer		
BMSC 6395	Doctoral Dissertation	2
BMSC 6998	Individual Research	3-4
PHAN 6100	Teaching Practicum (elective)	0-1
	Total	6 SCH
Year 4: Fall		
BMSC 6395	Doctoral Dissertation	2
BMSC 6998	Individual Research	4
	Total	6 SCH
Year 4: Spring		
BMSC 6395	Doctoral Dissertation	2
BMSC 6998	Individual Research	4
	Total	6 SCH
Year 4: Summer		
BMSC 6395	Doctoral Dissertation	2
BMSC 6998	Individual Research	4
	Total	6 SCH
Year 5: Fall		
BMSC 6395	Doctoral Dissertation	6
Milestones	*Declaration of Intent to Graduate*	0
	Total	6 SCH
Year 5: Spring		
BMSC 6395	Doctoral Dissertation	6
Milestones	*Declaration of Intent to Defend*	0
	Total	6 SCH

For additional information regarding Academic Procedures, please refer to the College of Biomedical and Translational Sciences Catalog at: Academic Procedures (CBTS).

Advancement to Candidacy

I. Master of Science

Advancement to Master's Candidacy is achieved after successful completion of a research proposal.

The research proposal is a detailed outline of the thesis project. It must include a summary of the proposed project, the hypothesis and aims to be investigated, significance and innovation of the project, research design and methodology to be used, a review of the salient literature that supports or opposes the hypothesis, and potential limitations. To take advantage of the advisory committee's expertise and advice, and to clearly define the project and the committee's expectations, it is imperative that the student meets with his/her advisory committee before preparing the research proposal.

Timeline for the M.S. Research Proposal:

- The research proposal must be completed before the **end of the second year** of graduate study. M.S. students are encouraged to complete their research proposal in the Fall of year 2.
- The student must submit a Notice of Research Proposal Seminar and Defense no later than **30 days** prior to the defense.
- The research proposal should be provided to the advisory committee no later than **14 days** prior to the defense.

The student will conduct a public seminar presentation of the research proposal, followed by a private defense of the research proposal with the members of the student's advisory committee. The research proposal must be approved by the advisory committee and the Dean prior to registering for Thesis (BMSC 5395).

Research Proposal Guidelines, the Notice of Research Proposal Seminar and Defense, and the Research Proposal approval forms are available on the CBTS Forms and Guidelines website.

Once a master's student has successfully advanced to candidacy, they may use "M.S. Candidate" as a title on any general business correspondence such as business cards, e-mail messages, etc.

II. Doctor of Philosophy

Advancement to Doctoral Candidacy is a two-step process. The first step of this process is successful completion of the Oral Qualifying Examination, a major milestone in most doctoral programs regardless of the field of study. The second step of this process is the preparation and defense of a research proposal. Below are details of the Structural Anatomy and Rehabilitation Sciences Discipline for advancing to candidacy.

A. Oral Qualifying Examination

The qualifying examination ensures that the doctoral student has mastered information needed to succeed as a Ph.D. in the fields associated with Structural Anatomy and Rehabilitation Sciences. The main goal of the examination is to ensure that each doctoral student has a broad knowledge base in the biomedical sciences and principles of Structural Anatomy and Rehabilitation Sciences.

The qualifying examination within the Structural Anatomy and Rehabilitation Sciences discipline should be undertaken in the Fall of Year 2 of graduate study after the successful completion of the STARS required advanced courses. Students will receive a study guide from the STARS graduate advisor upon their matriculation into the discipline. The student is expected to become knowledgeable in the topics covered in the study guide through their course work, reading of textbooks and scientific literature, and discussion with faculty members.

A committee comprised of members of the Structural and Rehabilitation Sciences graduate faculty, other UNTHSC faculty members, and the student's university member administer the qualifying examination. The graduate advisor will serve as committee chair for the qualifying exam and is a voting member of the committee. If the graduate advisor is the major professor, they will appoint another faculty member to serve as the chair of the committee. The graduate advisor will also appoint 3-4 additional voting faculty members to the committee. The university member serving on the student's advisory committee is a non-voting member and must be present for the qualifying exam. The student's major professor may not attend the qualifying examination.

At the start of the qualifying exam, the student will be given a list of 12 questions from three major areas: structural anatomy, rehabilitation sciences, and experimental design. The student must answer 6 total questions including at least one question from each of the three major areas. The student will have one hour

to review the questions and prepare their answers, followed by approximately two hours of oral examination by the committee.

Two attempts to successfully pass the qualifying examination are allowed. Failure of the student to pass the qualifying examination results in dismissal of the student from the doctoral program. A doctoral student who does not pass may be allowed to complete the requirements for a Master of Science degree (terminal Master's Degree). It is the responsibility of the chair of the oral qualifying exam committee to obtain signatures from the examination committee, university member, graduate advisor, and department chair upon completion of the exam. The appropriate form may be obtained from the CBTS Forms and Guidelines website.

B. Research Proposal

The research proposal is an outline of the dissertation project. It must include a summary of the proposed project, the hypothesis and aims to be investigated, significance and innovation of the project, research design and methodology to be used, a review of the salient literature that supports or opposes the hypothesis, and potential limitations. To take advantage of the advisory committee's expertise and advice, and to clearly define the project and the committee's expectations, it is imperative that the student meets with their advisory committee before preparing the research proposal.

Timeline for the Ph.D. Research Proposal:

- The research proposal should be completed before the **end of the second year** of graduate study.
- The student must submit a Notice of Research Proposal Seminar and Defense no later than **30 days** prior to the defense.
- The research proposal should be provided to the advisory committee no later than **14 days** prior to the defense. However, it is strongly recommended that the student provide their research proposal to their advisory committee earlier (ideally, 4 weeks in advance). This is a professional courtesy to the advisory committee and may assist the student in strengthening their proposal prior to the defense.

The student will conduct a public seminar presentation of the research proposal, followed by a private defense of the research proposal with the members of the student's advisory committee. The research proposal must be approved by the advisory committee and the Dean prior to registering for Dissertation (BMSC 6395).

Research Proposal Guidelines, the Notice of Research Proposal Seminar and Defense, and the Research Proposal approval forms are available on the CBTS Forms and Guidelines website.

Once a doctoral student has successfully advanced to candidacy, they may use "Ph.D. Candidate" or "Doctoral Candidate" as a title on any general business correspondence such as business cards, e-mail messages, etc.

Prior to candidacy, the minimum number of credit hours required for full-time enrollment is 12 SCH in the long semesters (fall, spring) and 6 SCH in the summer. Following candidacy, this drops to 6 SCH for all semesters. Once a PhD student has advanced to candidacy, they must enroll in a minimum of 2 SCH in BMSC 6395 (Doctoral Disseration) to maintain full-time enrollment status.

Other

I. Annual Research Progress Reports

The annual research progress report is a formal meeting where the student and advisory committee meet to evaluate the students progress. The student is expected to meet with their advisory committee a minimum of once per academic year, but is encouraged to meet more regularly as may be appropriate.

The yearly progress meeting is intended to help students focus on their personal academic goals within their selected academic field. Please see the CBTS Forms and Guidelines website for the rubric associated with this yearly milestone. Students are expected to present a formal update of the research progress made during the previous year, as well as any updates on other activities and achievements from the previous year. This report will allow the student to reflect on their academic year and their research progress. During this meeting, faculty may advise the student on how best to improve. Again, this meeting is to help teach the student how to create and manage their research agenda.

Yearly progress reports are due no later than the last day of the summer semester as defined by the most current academic years calendar. However, it is strongly encouraged that students submit at least a month early.

III. Graduation

Important dates for graduation can be found on the CBTS website.

Timeline for the Ph.D. Research Defense:

- The Intent to Graduate form should be completed in the semester prior to the semester during which the student will defend and graduate (e.g. Fall for a Spring graduation).
- The student must submit an Intent do Defend form no later than **30 days** prior to the final comprehensive exam and defense.
- The final draft of the thesis/dissertation should be provided to the advisory committee no later than **14 days** prior to the defense. However, it is strongly recommended that the student provide their thesis/dissertation to their advisory committee earlier (ideally, 4 weeks in advance). This is a professional courtesy to the advisory committee and may assist the student in strengthening their work prior to the defense.

Intent to Graduate forms, Intent to Defend Forms, the Report of Final Comprehensive Examionation (Defense) Form and Scoring Rubric, and other forms related to graduation are available on the CBTS Graduation Forms and Guidelines website.