utmb Health
Graduate School of
Biomedical Sciences

Clinical Science, Population Health Sciences, and Rehabilitation Sciences Handbook
# 2017-2018

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1. Graduate Programs

The Clinical Science, Rehabilitation Sciences and Population Health Sciences Program at The University of Texas Medical Branch (UTMB) are administered by the Department of Preventive Medicine and Community Health (PMCH). The PHS and RS programs are fully accredited by the national accrediting body, the Council for Education on Public Health (CEPH).

The PHS-GSBS Program administers four graduate degree programs: **Public Health** (Epidemiology, Biostatistics, and Aerospace Medicine Tracks)**, Population Health Sciences, Clinical Science, and Rehabilitation Sciences**.
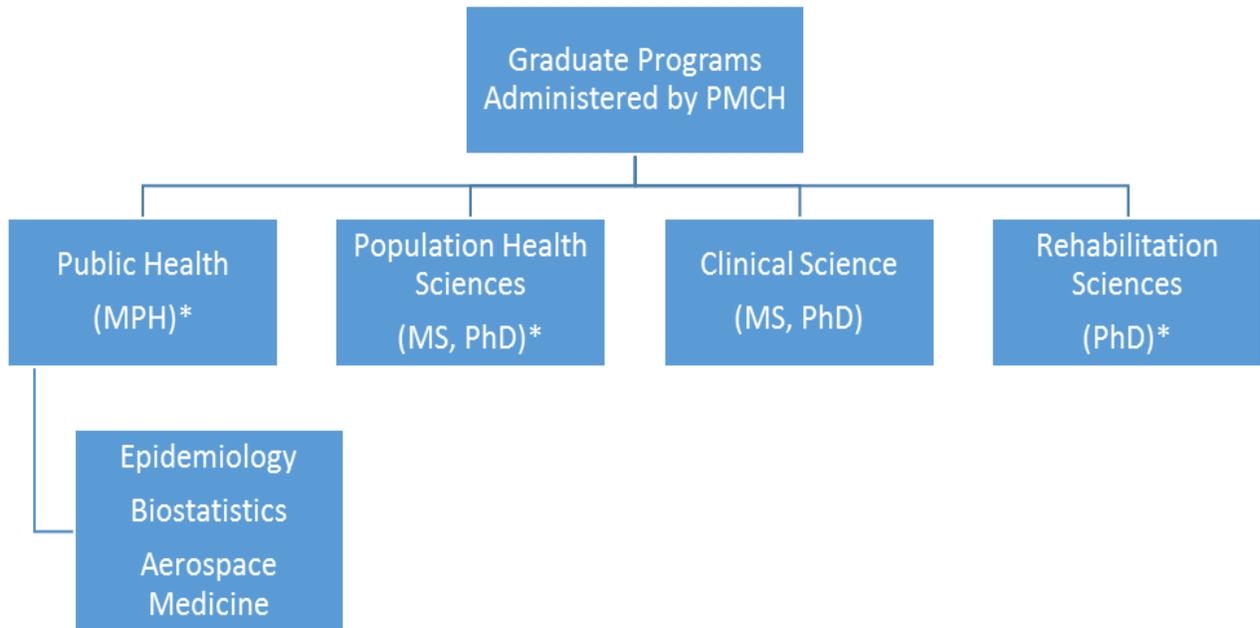
Clinical Science Program:

This multi-disciplinary area of study provides health care professionals with the didactic and experiential education required for the pursuit of academic or practical careers in health and medicine with an emphasis on studies in humans as individual study subjects or as populations.

In Clinical Science, we work toward this mission through the development, integration, and continual improvement of activities from our rigorous instructional program, collaborative and productive research agendas, and wide-ranging service commitments.

Population Health Sciences Program:

Reductions in morbidity and mortality during the 20th century resulted in large part from effective health promotion and disease prevention programs. In the 21st century, these activities will continue to be central to improving population health and reducing health disparities. The Population Health Sciences (PHS) Graduate Program prepares students to conduct, communicate, and apply research aimed at the protection, promotion, and restoration of health in human populations.

Curricula within the Program share a population health perspective that explores the interplay of individual biological and behavioral factors with aspects of the physical, social, and policy environments. Research focuses on health risks, determinants, outcomes, and interventions in clinical and community settings and in unique occupational or patient groups.

Training emphasizes the development and mastery of high-level quantitative skills in data collection and analysis.

The mission of the **Population Health Sciences Program** is to contribute to the protection and promotion of health in human populations by:

- Preparing students to practice skillful and evidence-based preventive medicine and public health;
- Conducting and communicating research that informs the diverse fields within public health; and
- Providing interdisciplinary expertise in the service of academic, professional, and community-based public health organizations.

We work toward this mission through the development, integration, and continual improvement of activities from our rigorous instructional program, collaborative and productive research agendas, and wide-ranging service commitments.

Rehabilitation Sciences Program:

Rehabilitation Sciences research is interdisciplinary and examines methods of prevention, intervention, and recovery associated with disabilities and chronic disease that limit a person's ability to engage in meaningful personal, community, recreational, and vocational activities.

The Rehabilitation Sciences PhD Program includes an emphasis on the Institute of Medicine's Enabling–Disabling Model of rehabilitation and health. This model focuses on the need for outcomes research to reduce and prevent disability, and to advance evidence-based health care in rehabilitation. Through interdisciplinary experiences, including a solid theoretical and methodological foundation in clinical and community health-related rehabilitation services, students are provided with advanced training in rehabilitation sciences, including assessment, development, restoration, and maintenance of independent function in persons with physical and cognitive impairments.

Core Values:

The VALUES of the graduate programs administered through PMCH are informed by UTMB values (http://intranet.utmb.edu/mission/). These are:

- *Education.* We are committed to life-long learning for our students, staff, faculty and community.
- *Innovation.* We always think of new ways to do things better.
- *Diversity.* We are committed to employ and educate a health care work force whose diversity mirrors the populations they serve.
- *Service.* We have a burning commitment to serve the health care needs of all Texans, regardless of their ability to pay.
- *Community.* We are committed to making our community a better place to live and work.

The institution's core values were reaffirmed and expanded upon by PMCH faculty members during a strategic planning process in 2005. The faculty and staff charged with developing a departmental strategic plan began the process by identifying shared values. The **PMCH consensus value statement** included:

- *Integrity.* We fulfill our duties and responsibilities in an open, honest, and ethical manner.

- *Collegiality.* We value cooperation and collaboration. We are respectful of our colleagues, co-workers, and community members.

- *Effectiveness.* We are committed to being effective, efficient and productive in our teaching, research, and service activities.

- *Responsiveness.* We are flexible and adaptable. Within our areas of expertise, we are prepared to respond to institutional and community needs as they arise.

Graduate Program Goals:

Our established values, goals and objectives guide us in our efforts to accomplish our stated mission. We have developed broad goals and measurable objectives for the program and for each of its major functions: instruction, research, and service, as well as workforce development, resources and administration, and diversity. The goals of the programs focus on:

1) Instruction - provide a rigorous, comprehensive, integrated public health curricular plan with high quality instruction to educate the next generation of researchers, teachers, and practitioners.

2) Research - conduct and disseminate high-quality research with implications for public health practice and policy making and population health sciences.

3) Service - engage faculty and students in professional and community-based service using their knowledge, skills and expertise.

4) Workforce Development - deliver continuing education for the public health workforce of Texas to address the changing needs of public health.

5) Resources and Administration - provide sufficient administrative, financial and other resources to fulfill the program mission, goals and objectives.

6) Diversity - practice the highest commitment to diversity and respect for individual differences.

2. PhD Degree: Core Population Health Science and Rehabilitation Sciences Competencies (UNDER CONSTRUCTION)

Department-wide PhD Competencies

1. Analyze the nature, scope, and determinants of public health problems by applying conceptual frameworks from key academic disciplines, formulating testable hypotheses, and identifying appropriate interventions based on an understanding of the existing evidence base.

2. Apply appropriate rigorous empirical methods to the evaluation of health services and health outcomes, including a well-rounded foundation of the methods and tools for empirical research, such as biostatistics, epidemiology, and research design.

3. Assemble or collect primary health and health care data and/or assemble and manage existing data from public and private sources.

4. Communicate and disseminate scientific findings effectively through written and oral methods to technical and lay audiences, demonstrating an ability to interpret study results in light of study limitations and prior research.

5. Conduct research in accordance with the highest ethical standards, scientific integrity, and interpersonal collegiality.

Population Health Sciences Competencies

1. Examine the history of and developments in the field of population health research, including issues relating to health disparities, disease prevention and health promotion, and health services.

2. Understand and demonstrate the role that social, behavioral, environmental, and biological factors play in contributing to individual and community health.

3. Integrate and critique theoretical and empirical literature and use or develop conceptual models and frameworks in the formulation of an original and significant population health research question with clear and testable hypotheses.

4. Select and utilize appropriate analytic techniques from advanced epidemiological, statistical, economic, qualitative or measurement methods (including structured systematic review, synthesis and meta-analysis, causal modeling, multivariable linear and logistic regression, general linear models,

longitudinal and multilevel modeling, and cost-effectiveness and cost-utility analyses) to address a specified research question.

Rehabilitation Sciences Competencies

1. Examine the history of and developments in the field of disability and rehabilitation research, including issues relating to functional status, health disparities, health promotion, and health services.

2. Understand and demonstrate the role that social, behavioral, environmental, and biological factors play in contributing to functional independence and community participation.

3. Integrate and critique theoretical and empirical literature and use or develop conceptual models and frameworks to formulate an original and significant disability- or rehabilitation-related research question with clear and testable hypotheses.

4. Select and utilize appropriate analytic techniques from advanced epidemiological, statistical, economic, qualitative, or measurement methods to address a specified research question. Examples may include descriptive statistics, multivariable linear and/or logistic regression, multi-level modeling, cost-effectiveness and/or cost-utility analysis, systematic reviews, and meta-analysis.

5. Demonstrate proficiency in scientific writing including structured abstracts, manuscripts, and grant applications.

3. Clinical Science, Population Health Sciences, and Rehabilitation Sciences Curriculum

The M.S. and Ph.D. curriculum plans include core program requirements as well as curriculum specific courses. Research projects and elective courses can be tailored to meet individual student's interests and career goals.

The typical Ph.D. curriculum plan includes two years of course work providing the student with strong quantitative research skills and an understanding of theory and methods within the specific curricular area. Students also work on mentored research projects during these academic years. The student takes the qualifying examination in the third year to demonstrate proficiency in the required knowledge and skills and to show readiness to conduct independent research. Submission of an approved dissertation proposal advances the student to candidacy for the degree. Completion, presentation, and defense of the dissertation project are the final requirements in the curriculum plan.

Curricular Plans

Each student who graduates with a graduate degree (master's or doctorate) from the CS, PHS, or RS Programs shall have satisfactorily completed a specified number of core courses or their equivalent, in addition to the required courses for the degree discipline.

PHD Population Health Sciences Curricular Plan 2016-2017*

Course Number	Course Title	Professor	Credit Hours	Semester
Public Health Core Courses				
PHS 6343	Biostatistics	Jennings	3	Fall 1
PHS 6330	Introduction to Epidemiology	Arcari	3	Fall 1
PHS 6396	Issues in Prevention	Rudkin	3	Summer 1
			9 subtotal	
Biostatistics/Methods Required Courses				
PHS 6344	Introduction to Linear Models	TBA	3	Spring 1
PHS 6333	Epidemiological Methods	Veeranki	3	Fall 2
PHS 6210	Introduction to Data Management	Chen	2	Fall 1
PHS 6321	Survival Data Analysis	Kuo	3	Spring 1 or 2
PHS 6313 OR	Correlated Data Analysis	Kuo	3	Summer 1 (alt)
PHS 6341	Categorical Data Analysis	Spratt	3	Spring 1 or 2
PHS 6374	Applied Survey Methods	Weller	3	Fall 1 or Fall 2
PHS 6322	Research Design	Weller/Lu	3	Spring 2
			17 subtotal	
PHS Required Courses				
PHS 6212	Translational Epi 1: Patient Oriented Research	Baillargeon	2	Spring 1
PHS 6213	Translational Epi 2: Population Oriented Research	Prochaska	2	Spring 1
PHS 6379	Social Epidemiology	Peek	3	Spring 2
PHS 6195	Seminar (4 semesters)	Mutambudzi	1	Fall 1, Spring1, Fall 2, Spring 2
PHS 6280	Society and Health Care	Kaul	2	Summer 1 or Spring 1
PHS 6219	Stress and Health	Peek	2	Fall 1 or Fall 2
PHS 6366 OR	Aging and Health	Markides	3	Fall 1 or Fall 2
PHS 6312	Minorities, Aging, and Health	Markides	3	Fall 1 or Fall 2
			21 subtotal	
Additional Required Courses				
MEHU 6101	Ethics of Scientific Research	Various	1	Summer 1
PHS 6011/6097	Research	Various	9+	
PHS 6098	Thesis	Various	9+	
			19 subtotal	
			66+ TOTAL	

* **Program accredited by the Council on Education for Public Health (CEPH)**

PHD Rehabilitation Sciences Curricular Plan 2016-2017*

Course Number	Course Title	Professor	Credit Hours	Semester
Public Health Core Courses				
PHS 6343	Biostatistics	Jennings	3	Fall 1
PHS 6330	Introduction to Epidemiology	Arcari	3	Fall 1
PHS 6396	Issues in Prevention	Rudkin	3	Summer 1
			9 subtotal	
Biostatistics/Methods Required Courses				
PHS 6344	Introduction to Linear Models	TBA	3	Spring 1
PHS 6210	Introduction to Data Management	Chen	2	Fall 1
PHS 6321	Survival Data Analysis	Kuo	3	Spring 1 or 2
PHS 6322	Research Design	Weller/Lu	3	Spring 2
			11 subtotal	
RS Required Courses				
PHS 6212	Translational Epi 1: Patient Oriented Research	Baillargeon	2	Spring 1 or 2
PHS 6213	Translational Epi 2: Population Oriented Research	Prochaska	2	Spring 1
PHS 6390	Introduction to Rehabilitation Science	Graham	3	Fall 1 or 2
PHS 6391	Evidence-Based Rehabilitation Science	Ottenbacher	3	Spring 1 or 2
PHS 6252	Patient Centered Outcomes Research	Graham	2	Fall 1 or 2
PHS 6195	Seminar (4 semesters)	Mutambudzi	1	Fall 1, Spring1, Fall 2, Spring 2
PHS 6141	Rehabilitation Sciences Roundtable (4 semesters)	Karmarkar	1	Fall 1, Spring1, Fall 2, Spring 2
			20 total	
Additional Required Courses				
MEHU 6101	Ethics of Scientific Research	Various	1	Summer 1
PHS 6011/6097	Research	Various	9+	
PHS 6099	Dissertation	Various	9+	
			19 subtotal	
			59+ TOTAL	

* Program accredited by the Council on Education for Public Health (CEPH)

PHD/MS Clinical Science Curricular Plan 2016-2017

Course Number	Course Title	Professor	Credit Hours	Semester
Core Courses				
PHS 6343	Biostatistics	Jennings	3	Fall 1
PHS 6330	Introduction to Epidemiology	Arcari	3	Fall 1
PHS 6344	Introduction to Linear Models	TBA	3	Spring 1
PHS 6210	Introduction to Data Management	Chen	2	Fall 1
PHS 6322	Research Design	Weller/Lu	3	Spring 2
PHS 6212 OR	Translational Epi 1: Patient Oriented Research	Baillargeon	2	Spring 1
PHS 6213	Translational Epi 2: Population Oriented Research	Prochaska	2	Spring 1
PHS 6195	Seminar (4 semesters for PHD, 2 semesters for MS)	Mutambudzi	1	Fall 1, Spring1, Fall 2, Spring 2
Various	Electives	Various	9+ (PHD) 3+ (MS)	
			20+ subtotal for MS 31+ subtotal for PHD	
Additional Required Courses				
MEHU 6101	Ethics of Scientific Research	Various	1	Summer 1
PHS 6011/6097	Research	Various	9+	
PHS 6099/6098	Dissertation/Thesis	Various	9+	
			19+ subtotal	
			39+ TOTAL for MS 50+ TOTAL for PHD	

At least nine credit hours of prescribed specialized courses will be selected from courses directly applicable to major area of study in clinical investigation, health services research, health informatics, or biostatistics.

The electives may be selected from those offered within the Program or from any other graduate program on campus. All electives must be approved in advance by the student's Course Advisory Committee and the Clinical Science Program Director.

4. Qualifying Exam (UNDER CONSTRUCTION)

All PhD students are required to take the qualifying exam before being eligible for admission to candidacy. Students take the exam after all required coursework has been completed.

The qualifying exam consists of a single comprehensive exam intended to test ability to merge knowledge of coursework, readiness to conduct independent research, and ability in integrating methods and theories in population health as they apply to a student's field of research.

The qualifying examination should consist of:

- 3-4 questions, each roughly 10 pages for a total of no more than 40 pages.

- Two core questions (epidemiology, research methods/design, biostatistics and population health sciences) will be provided by the GPC, with the goal being the same questions for all students taking the exam at that time (up to 15 pages). These should not be final examination questions, but should cut across the core disciplines.

- The remaining questions should focus more specifically on students' area of study.

- Questions should be open-ended.

The exam is given once a year in June at the end of the second year. It is held the first full week of the month.

Applying for the Exam

When you are ready to take the exam you will be required to complete a departmental application and submit a copy of your academic record. The application requires that your mentor be the chair of the committee, along with 2 other members from your discipline. There will be 2 members appointed to your committee to represent the core faculty grading questions 1 and 2. The form will need to be signed by your selected committee members and your Program Director, and then submitted to the Education Office (1.116 Ewing Hall).

NOTE: Master's students are not required to take the qualifying exam.

5. Candidacy

After PhD students have successfully completed the qualifying exam they have 1 year to form their dissertation committee and submit a dissertation proposal to the Graduate School of Biomedical Sciences. (NOTE: Master's students should form their committee and submit their proposal after they have completed the core courses for the degree).

A PhD committee has 5 faculty members: your mentor as the chairperson, an off campus PhD professional in your discipline, a UTMB faculty member from another area or program, and 2 additional members from your area or program.

A Master's degree committee is made up of 3 faculty members: Your mentor as chair and 2 other members of their choosing. There are no special requirements regarding off campus or out of program.

5.1 Applying for Candidacy

To be admitted to candidacy your dissertation / thesis proposal must be submitted to your committee chair and circulated to the remaining members of your committee for approval. Once you have done this, you should complete the application for candidacy and follow the steps listed below.

- Complete the application for candidacy. You may request one from the PMCH Education Coordinator, or go to the Graduate School of Biomedical Sciences website and download one.
  (http://gsbs.utmb.edu/_pdf/Application%20for%20Candidacy.pdf)

- Once completed, submit the application and a copy of the proposal to the PMCH Education Coordinator. The proposal must be submitted as a separate document in word format.

- The Education Office will check the document for plagiarism using ithenticate software. If there are no plagiarism issues, the application and proposal will be submitted for you to the Graduate School of Biomedical Sciences for approval

- Once approved by the Graduate School of Biomedical Sciences, the student will be admitted to candidacy. Candidacy status means that the Master's students should register for PHS 6098 Thesis in the next registration cycle, and the PhD student should register for PHS 6099 Dissertation.

  (An example of the Candidacy Application can be found in Appendix C)

5.2 Writing your proposal

A formal written proposal is required for a dissertation or thesis. According to the GSBS, the **proposal** should address the following questions:

1. *What do you intend to do?*
2. *Why is the work important?*
3. *What has been done already?*
4. *How are you going to do the work?*

Proposal Format:

1. Title Sheet – Title of the research project followed by your name and a 200 word summary of the proposed thesis/dissertation research. One page.

2. Research Plan

   A. Specific Aims or Problem Statement: State concisely and realistically what the research described in the proposal is intended to accomplish. What hypothesis is to be tested or what question is to be addressed? Do not exceed one page.

   B. Significance: Briefly sketch the background (or literature review) to your thesis/dissertation proposal, critically evaluate existing knowledge, and specifically identify the gaps which the proposal is intending to fill. State concisely the importance of the research described in the proposal by relating the specific aims to longer term objectives. Do not exceed three pages.

   C. Research Accomplishments to Date: If you have conducted any research pertinent to your thesis/dissertation proposal, briefly describe your results. Also, list relevant courses or other experiences which enhance your competence to perform the proposed research. Do not exceed four pages of written text. (Additional pages may be used for figures, graphs, tables, etc.)

   D. Methods: Briefly discuss the research design and procedures to be used to accomplish the specific aims of the proposal. If any new methodology is being used, describe its advantage over existing methodology. Include the kinds of data to be gathered (when applicable) and the means by which the data will be analyzed and interpreted. The discussion should provide sufficient evidence that

the specific aims are attainable. It is not necessary to include detailed methodological/technical protocols. Do not exceed ten pages.

E. Literature Cited: Cite the pertinent literature in the text and provide the complete reference list in the Literature Cited section. Each citation must include the names of all authors, the name of the book or journal, volume number, page numbers, and year of publication. Although no page limitation is specified for this part of the proposal, make every attempt to be judicious in compiling the biography. It should be relevant and current. It need not be exhaustive.

F. Supervision and Facilities: Name the person(s) proposed to be immediately responsible for supervising your thesis/dissertation research and laboratory (or other facilities) where most of your proposed research will take place. If the proposed project involves collaboration with another institution, give evidence that the collaborator (s) agrees to participate.

G. Human Subjects: Include all human research-related instruments to be used in this study, sample of subject consent form(s), and instructions to subjects as appropriate.

A **draft of the written proposal,** no more than 10 pages (excluding tables and appendices), is required. An extensive literature review is not necessary for the proposal. The format of the proposal should follow GSBS guidelines. Refer to GSBS format requirements at http://www.gsbs.utmb.edu/ETD/guidelines.htm.

Appendix C – a handout regarding plagiarism.

1.   Dissertation / Thesis

You will begin writing your dissertation / thesis after you have been admitted to candidacy. The semester after you have achieved candidacy, PhD students will begin enrolling in PHS 6099 Dissertation, and Master's students will enroll in PHS 6097 Thesis.

A template and instructions for writing and formatting your dissertation can be found on the Graduate School of Biomedical Sciences.

- http://gsbs.utmb.edu/

- Current Students

- Ready for Graduation

- Electronic Thesis and Dissertation

- On this page, choose Template

Appendix D – Guide to using dissertation / thesis template and a printed version of the template.

6.1   Steps for Graduation

PhD Students

- Complete your final draft of your dissertation

- Set up a date for your oral defense. You must complete a Request for Final Oral Exam form. (You can find this on the GSBS website, http://gsbs.utmb.edu/, *by clicking Current Students, Ready for Graduation, Request for Final Oral Exam).* This form must be completed and turned in to the Graduate School 2 weeks prior to the defense date.

- On the day of your defense you will have to have the members of your committee sign the signature page for your dissertation, as well as sign a Report of Final Oral Exam Form (this form can be found following the instructions above.)

- After your defense, you will make any changes to your dissertation required by your committee and then submit it to Dr. Peek as a word document so that she can run it through the ithenticate software.

- Once approved, you will submit the dissertation to Dr. Joan Nichols in the Graduate School of Biomedical Sciences.

- Dr. Nichols will review the document and let you know if there are changes, or if you can go ahead and upload it to the Electronic Thesis Dissertation (ETD) website.

- Complete the Graduation Packet. This can be found on the GSBS website - http://gsbs.utmb.edu/, by clicking *Current Students, Ready for Graduation, Graduation Packet.* You should make sure that all items on the checklist are complete and then turn them in to the Program Coordinator. They, in turn, will keep a copy for your file and turn it in to the GSBS for you.

Master's Students

- Complete your final draft of your Thesis

- After approved by your committee, submit to Dr. Peek as a word document so that she can run it through iThenticate.

- Once approved, you will submit the document to Dr. Joan Nichols in word format.

- Dr. Nichols will review the document and let you know if there are changes, or if you can go ahead and upload it to the Electronic Thesis Dissertation (ETD) website.

- Present your research in a public forum before graduation

- Complete the Graduation Packet. This can be found on the GSBS website, http://gsbs.utmb.edu/, by clicking *Current Students, Ready for Graduation, Graduation Packet.* You should make sure that all items on the checklist are complete and then turn them in to the Program Coordinator. They, in turn, will keep a copy for your file and turn it in to the GSBS for you