

# M.S. IN CLINICAL AND TRANSLATIONAL INVESTIGATION

<https://med.miami.edu/graduate-studies/master-programs/ms-in-clinical-and-translational-investigation> (<https://med.miami.edu/graduate-studies/master-programs/ms-in-clinical-and-translational-investigation/>)

## Overview

The Master of Science in Clinical and Translational Investigation (MSCTI) at the University of Miami offers a structured educational program that trains students in the principles and practice of translational science and clinical research. Our multidisciplinary program has been designed to prepare practitioners and researchers to adapt to translational science and to overcome the perceived bottlenecks that inhibit translational research. We equip our students with the tools to navigate the complexities of translational research design, methodology, regulatory and ethical challenges.

Drawing upon the University of Miami Miller School of Medicine's mission to educate the next generation of medical leaders and to lead life-changing discoveries that transform patient care through innovative research, the Master of Science in Clinical and Translational Investigation (MSCTI) degree program's mission is to educate the next generation of investigators who demonstrate the ability to review, design, and conduct high-quality, multidisciplinary clinical and translational research independently.

Our educational objective is to provide an instructor-led educational curriculum that introduces students to key areas of clinical and translational research, and to produce graduates who demonstrate core competencies in clinical and translational research. Students will learn how to design independent and collaborative research projects and become well-versed in key aspects of clinical and translational investigation.

## Course of Study

The Masters in Clinical and Translational Investigation can typically be completed in 4-6 consecutive terms (Fall, Spring, Summer) depending on the goals and professional responsibilities of the student. The 30 credit-hour program includes completion of structured taught courses and completion of a master's thesis which may take the form of a completed research grant proposal or publishable manuscript. Successful completion of the MSCTI requires students to maintain a GPA of 3.0 or greater with no grade below C in any courses and successful completion of the master's thesis.

Students who intend to complete the MSCTI program part-time must discuss their plan with their employer and make adjustments as needed to attend course lectures. Students who are studying with an F1 visa must enroll in a minimum of nine credits per semester.

## Contact Information

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MS Clinical and Translational Investigation Website (<https://med.miami.edu/graduate-studies/master-programs/ms-in-clinical-and-translational-investigation/>)  
[mscti@miami.edu](mailto:mscti@miami.edu) or 305-243-6398

## Admissions Requirements

### Admission Requirements

We accept applications from individuals who meet any of the following criteria:

- Individuals who have completed terminal healthcare degrees (e.g., MD, PhD, DO, RN) who are interested in pursuing additional formal didactic training to become independent investigators in clinical and/or translational science;
- Individuals who have completed terminal scientific degrees (e.g., Ph.D., DSci) who are interested in pursuing additional formal didactic training to improve knowledge and skills related to translation of basic to clinical applications; and
- Students who have completed a Bachelor's degree who have outstanding academic credentials and an interest in obtaining a MS prior to a career in clinical translational research or a graduate program will also be eligible.

Detailed information about the application package requirements can be found here (<https://med.miami.edu/graduate-studies/master-programs/ms-in-clinical-and-translational-investigation/application-process/>).

## Curriculum Requirements

Code	Title	Credit Hours
<b>Core Courses</b>		
CTI 605	Introduction to Team Science and Entrepreneurship	2
CTI 602	Writing for Translational and Clinical Science	2
CTI 603	Research Ethics	3
CTI 805	Capstone Project / Master's Thesis	6

EPH 604	Clinical Trials	3
EPH 621	Fundamentals of Epidemiology	3
HGG 630	Variation and Disease	2
<b>ELECTIVES</b>		<b>9</b>
<b>Bioinformatics (One of the Following)</b>		
BST 623	Software Tools for Manuscript Development and Reproducible Research	
BST 625	Survey of Statistical Computing	
BTE 650	Introduction to Health Informatics	
EPH 651	Research Methods	
EPH 664	Fundamentals of Healthcare Analytics	
HGG 660	Bioinformatics Theory and Practice	
<b>Biostatistics (One of the Following)</b>		
CTI 615	Statistical Methods for Clinical and Translational Research	
EPH 601	Medical Biostatistics I	
EPH 602	Biostatistics II	
EPH 703	Advanced Statistical Methods I	
EPH 751	Survival Analysis in Clinical Trials	
BST 605	Statistical Principles of Clinical Trials	
CTI 604	Advanced Independent Study	
<b>Cultural Diversity and Community Engagement (One of the Following)</b>		
EPH 612	Global Health	
EPH 617	Disease Prevention and Health Promotion	
EPH 632	U.S. Health Systems	
EPH 640	Urban Environment and Public Health	
EPH 647	Community Based Participatory Research and Social Network Analysis	
EPH 656	Qualitative Research Methods	
EPH 728	Social Epidemiology	
<b>Total Credit Hours</b>		<b>30</b>

## Program Plan for Part-time Professional Students

<b>Year One</b>		
<b>Fall</b>		<b>Credit Hours</b>
CTI 605	Introduction to Team Science and Entrepreneurship	2
EPH 621	Fundamentals of Epidemiology	3
<b>Credit Hours</b>		<b>5</b>
<b>Spring</b>		
CTI 602	Writing for Translational and Clinical Science	2
CTI 615	Statistical Methods for Clinical and Translational Research	3
HGG 630	Variation and Disease	2
<b>Credit Hours</b>		<b>7</b>
<b>Summer I</b>		
EPH 604	Clinical Trials	3
<b>Credit Hours</b>		<b>3</b>
<b>Year Two</b>		
<b>Fall</b>		
CTI 603	Research Ethics	3
EPH 651	Research Methods	3
<b>Credit Hours</b>		<b>6</b>
<b>Spring</b>		
CTI 805	Capstone Project / Master's Thesis	1-6

EPH 647	Community Based Participatory Research and Social Network Analysis	3
	<b>Credit Hours</b>	<b>4-9</b>
	<b>Total Credit Hours</b>	<b>25-30</b>

## Program Plan for Full-time Students

This plan is ideal for students who want to complete the program full-time as well as students on F-1 visas.

Year One		
		Credit Hours
<b>Fall</b>		
CTI 603	Research Ethics	3
CTI 605	Introduction to Team Science and Entrepreneurship	2
EPH 621	Fundamentals of Epidemiology	3
EPH 617	Disease Prevention and Health Promotion	3
EPH 651	Research Methods	3
	<b>Credit Hours</b>	<b>14</b>
<b>Spring</b>		
CTI 602	Writing for Translational and Clinical Science	2
CTI 615	Statistical Methods for Clinical and Translational Research	3
CTI 805	Capstone Project / Master's Thesis	6
HGG 630	Variation and Disease	2
	<b>Credit Hours</b>	<b>13</b>
<b>Summer</b>		
EPH 604	Clinical Trials	3
	<b>Credit Hours</b>	<b>3</b>
	<b>Total Credit Hours</b>	<b>30</b>

## Mission

Drawing upon the University of Miami Miller School of Medicine's mission to educate the next generation of medical leaders and to lead life-changing discoveries that transform patient care through innovative research, the Master of Science in Clinical and Translational Investigation (MSCTI) degree program's mission is to educate the next generation of investigators who demonstrate the core competencies necessary to review, design, and conduct high-quality, multidisciplinary clinical and translational research independently.

## Student Learning Outcomes

- 100 % of students who complete CTI 605 'Introduction to Clinical and Translational Research' should demonstrate the following competencies with at least intermediate proficiency:
  - Summarize evidence from the literature on a translational research problem;
  - Critique clinical and translational research questions using data-based literature searches;
  - Assess the strengths and weaknesses of possible study designs for a given clinical or translational research question; and
  - Describe future implications of published studies on team science and translational science.
- Students who complete CTI 602 'Writing for Clinical and Translational Research' should demonstrate the following competencies:
  - Write introduction to a translational research manuscript or a grant specific aims page;
  - Understand the grant review process from the perspective of an applicant and a reviewer; and
  - Understand the key components of how to put together an NIH-style grant.
- The overall goal of the Capstone Project is to provide students with an opportunity for hands-on exposure to clinical/translational research. Students who complete the CTI 805 'Capstone Project/Masters Thesis' of the MSCTI Program will demonstrate the following competencies:
  - Ability to plan a research activity;
  - Ability to prepare, draft, finalize, and submit all sections of a grant application;
  - Knowledge and motivation to carry out the planned research activity;
  - Ability to analyze the results of the research;
  - Ability to complete a written description of the work in the form of a well-written, properly organized thesis;
  - Ability to complete a thesis with potential for presentation at and/or participation in professional meetings and/or publication in scholarly journals; and
  - Ability to identify and work with a mentor on their project.