

# CLINICAL AND TRANSLATIONAL SCIENCE (CTSC) - PROFESSIONAL MASTER'S

• M. Hassan Murad, M.D., Program Director

The Professional Master's in Clinical and Translational Science is a rigorous and comprehensive program designed for individuals who want to deepen their expertise in translating basic research into clinical applications.

This master's program equips professionals with the theoretical knowledge and practical tools to bridge the gap between laboratory discoveries and effective healthcare solutions. The curriculum emphasizes critical competencies in study design, data analysis, research ethics, team science, and the regulatory environment of translational research.

The program is ideal for individuals who seek to advance their careers in clinical and translational research without the necessity of conducting a thesis or independent research.

Scholars in the Professional Master's Degree Program in Clinical and Translational Science will gain competencies through carefully selected didactic coursework and a custom final project (non-thesis). Optionally, program electives can be focused in one of five concentration areas including:

- Biomedical Ethics
- Clinical Trials
- Individualized Medicine
- Mixed Methods Research
- Quantitative Research Methods

## Application

Candidates must complete an Professional Master's Degree Application form. This form is available on the MCGSBS Master's Programs intranet site. Supporting documents include a program fee agreement form, transcripts from previous colleges and two letters of recommendation - one preferred from your direct supervisor/manager.

## Eligibility

Enrollment is restricted to current Mayo employees/appointees and is available at all three sites: Arizona, Florida, and Minnesota, as well as the Mayo Clinic Health System. Visiting clinicians, research trainees, and research collaborators are not eligible.

Applicants must have received a bachelor's degree from an accredited college or university, must have taken appropriate undergraduate science courses to adequately prepare for the Master's program, must have a

minimum undergraduate grade point average that demonstrates a record of academic excellence.

## Time Requirement

Time to completion can vary by student (three to five years), but all requirements for the Master's degree must be completed within five years. The five-year period begins on the start date of the term the student is appointed to. If the student's Mayo employment ends prior to completion of the program, the MCGSBS appointment will also end.

## Registration Requirement

At least 75% of the coursework for the Master's degree must be completed in MCGSBS.

## Minimum Credit Requirements

Students must complete a minimum of 45 credits, including MGS 6000 Responsible Conduct of Research. Didactic credits may vary by track - refer to specific program requirements for details.

## Transfer Credits

A total of 9 didactic credits may be transferred into the Professional Master's Program. For more details, see the Credit Conversion, Transfer, Waiver and Substitution Policy on the MCGSBS intranet site.

## Course Requirements

A total of **45 credits** with maintenance of at least a 3.0 GPA are required for graduation.

Code	Title	Hours
<b>Required foundational courses</b>		
MGS 6000	Responsible Conduct of Research	1
CTSC 5005		1
CTSC 5011	Independent Clinical Research Proposal Development	1
CTSC 5020	Regulatory Issues in Clinical Research	1
CTSC 5100	Academic Publishing	1
CTSC 5370	Introduction to Epidemiology	2
CTSC 5390	Advanced Applied Epidemiological Methods	2
CTSC 5600	Introduction to Statistics in Clinical and Translational Research	3
Select one of the following:		1
CTSC 5602	Introduction to Utilizing Statistical Software in Clinical and Translational Research	
CTSC 5603		
CTSC 5610	Statistics: Linear Regression Concepts, Interpretation, and Statistical Software	3
CTSC 6100	Mechanisms of Human Disease	3
CTSC 6120	Case Studies in Translation	2
<b>Selective foundational courses</b>		<b>1</b>
CTSC 5710	Practical Data Collection	
CTSC 5810	Qualitative Research Design, Methods, and Analysis	
CTSC 5820	Introduction to Survey Research	
<b>Required capstone courses</b>		
MGS 6400	Master's Scholarly Review Article (Final Project)	6

<b>Concentrations and Elective Credits <sup>1</sup></b>	<b>17</b>
<b>Total Hours</b>	<b>45</b>

<sup>1</sup> Seventeen additional elective credits are required within the 45-credit program. Scholars can customize a curriculum that best meets their individual professional goals or choose to focus their elective credits in a concentration area.

Scholars are encouraged to fulfill electives with clinical and translational science courses (CTSC). Other Mayo Clinic Graduate School of Biomedical Sciences (MCGSBS) courses may be considered. Consult with your CCaTS#education coordinator or specialist for further information.

Students are expected to make continuous and successful academic and professional progress toward graduation requirements for the M.S. degree. The concept of satisfactory progress mandates monitoring of a students' academic and professional performance through items including, but not limited to:

- Complete Degree Planning Tool (DPT)
- Mentor Selection (latter part of program)
- Pass Written Qualifying Exam
- Advisory Committee Selection (for final project)
- Scholarly Review Article (final project)
- Meet any program specific competencies as defined by track

Full details are included in the Academic Progress and Graduation Requirements for Masters Programs Policy on the MCGSBS intranet site.

## Minimum Grade Requirements

Students are expected to maintain a grade point average of 3.0 in didactic course work. Students whose performance falls below this standard in a given quarter will be placed on academic probation, as described in the Deficiencies and Unsatisfactory Progress Policy and Warning, Probation, Dismissal and Appeal Policy outlined on the MCGSBS intranet site.

## Degree Planning Tool

The use of a Degree Planning Tool (DPT) is required and allows students to list the course work to fulfill degree requirements, including transfer credits. The DPT must be completed during the first academic year and should be updated as courses are completed throughout the training program. A final completed DPT must be submitted to the school when a tentative defense date has been determined to be cleared to graduate.

## Mentor Selection

A master's mentor must be employed at Mayo Clinic and must have MCGSBS Full or Master's graduate faculty privileges. Mentor is selected with counsel from Program Director, done at any time during training but no later than end of year. A list of Faculty with Privileges can be found on the MCGSBS intranet site.

## Written Qualifying Examination

The written qualifying examination will test the breadth of biomedical knowledge, and analytic and critical reasoning skills. The content and format of the examination is determined by each track. The written

qualifying examination must be passed before the Master's final project review may be scheduled.

For more details, see the Written Qualifying Exam Procedure on the MCGSBS intranet site.

### Master's Project Review

At the completion of the Master's scholarly review article (final project), students must review their document with the Master's Advisory Committee. MCGSBS must be informed of the date at least three weeks in advance so that the Master's Final Project Review Report Form can be sent to the Master's Advisory Committee chair. Members of the Master's Advisory Committee should receive copies of the scholarly review article (final project) at least three weeks prior to the final review.

## Scholarly Review Article (Final Project)

Master's degree tracks will specify the requirements for a scholarly review article (final project) to be completed as a required component of the degree program. This scholarly review article (final project) needs to be under the supervision of a faculty member with graduate faculty privileges. The scholarly review article (final project) needs to be approved by the track Program Director.

## Final Project Corrections

After the student has completed the final project presentation the student has no more than 30 days from the presentation date to complete all graduation requirements, including any requested corrections to the final project.