CLINICAL TRANSLATIONAL SCIENCE, PhD

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clinical-research@case.edu

Degree: Doctor of Philosophy (PhD)
Field of Study: Clinical Translational Science

Program Overview
The mission of the PhD in Clinical Translational Science program is to prepare its students to become independent investigators in clinical and translational science. Thus, in addition to excellent previous academic and/or clinical preparation and recommendations, the PhD program is seeking students with demonstrated clinical translational research interest and experience.

Eligible applicants include:
- Individuals with an advanced clinical degree (e.g., MD, DMD)
- Individuals enrolled in dual clinical-research degree programs, such as CWRU’s MD-PhD program
- Individuals with an existing Master’s degree in a health-related field (e.g., MS, MSN, MPH)
- Individuals with other scientific or clinical backgrounds to be evaluated on a case-by-case basis.

Faculty
The program resides in the Department of Population and Quantitative Health Sciences (PQHS) in the School of Medicine. The academic units involved include the School of Medicine, Nursing, Management, and Dentistry. The faculty is selected for their expertise and commitment to teaching and mentorship in clinical investigation.

Important Note: The program information contained on this page is current as of July 1st, 2023. For the most current information, we advise you to review the PhD in Clinical Translational Science Program Handbook.

PhD Policies
For PhD policies and procedures, please review the School of Graduate Studies section of the General Bulletin.

Program Requirements
Curriculum requirements are based on student’s previous education and training:
- **Student with No Existing Advanced Research Degree**
  - Students will complete a minimum of 54 credit hours
  - 36 credit hours is coursework, of which a minimum of 24 must be graded.
  - 22 credit hours will be required coursework (19 are graded)
  - 2 credit hours are core elective coursework
- **Students with an Advanced Research Degree**
  - Students with a relevant advanced degree must petition the PhD Steering Committee to obtain a waiver for required coursework. For the waiver, the student must submit transcripts showing the course and grade, as well as the syllabus for the course.
  - Per the School of Graduate Studies, curriculum for individual with relevant advanced degree:
    - Minimum of 18 credit hours of coursework, all of which 12 must be graded. The courses used to achieve the 18 credit hours will depend on individual needs and require the academic advisor’s (mentor’s) approval.
    - 18 credit hours of Dissertations
- **Students Seeking Dual Degree MD/PhD through Case Western Reserve University’s Medical Scientist Training Program (MSTP) and Clinical Translational Science Training Program**: Curricula of the two-degree programs are integrated.
  - Curriculum for Dual-Degree students:
    - 69 credit hours of coursework, as follows:
      - 19 credit hours of required courses (CRSP 401 Introduction to Clinical Research Summer Series is waived as course material is covered in medical school’s curriculum), of which 16 must be graded.
      - 18 credit hours (graded), of graduate credits for portions of medical school (IBIS courses)
      - 2 credit hours of core electives
      - 9 credit hours of electives or research practicums (CRSP 601)
      - 6 credit hours of research rotations
      - 18 credit hours of CRSP 701 Dissertation Ph.D.

### Curriculum

#### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CRSP 401</td>
<td>Introduction to Clinical Research Summer Series <em>a</em></td>
<td>3</td>
</tr>
<tr>
<td>CRSP 412</td>
<td>Communication in Clinical Research - Grant Writing</td>
<td>1</td>
</tr>
<tr>
<td>CRSP 413</td>
<td>Communication in Clinical Research - Oral Presentation, Posters, and the Mass Media</td>
<td>1</td>
</tr>
<tr>
<td>CRSP 431</td>
<td>Statistical Methods I</td>
<td>3</td>
</tr>
<tr>
<td>CRSP 432</td>
<td>Statistical Methods II</td>
<td>3</td>
</tr>
<tr>
<td>CRSP 440</td>
<td>Translational &amp; Patient-Oriented Research Theory</td>
<td>3</td>
</tr>
<tr>
<td>CRSP 450</td>
<td>Seminar in Multidisciplinary Clinical &amp; Translational Research</td>
<td>0</td>
</tr>
<tr>
<td>CRSP 501</td>
<td>Team Science - Working in Interdisciplinary Research Teams</td>
<td>1</td>
</tr>
<tr>
<td>CRSP 550</td>
<td>Meta-Analysis &amp; Evidence Synthesis</td>
<td>2 - 3</td>
</tr>
<tr>
<td>CRSP 603</td>
<td>Research Ethics and Regulation</td>
<td>2</td>
</tr>
<tr>
<td>PQHS 490</td>
<td>Epidemiology: Introduction to Theory and Methods</td>
<td>3</td>
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</tbody>
</table>

a Waived for MD/PhD students in the CTSTP program or by petition with sufficient background from previous coursework.
CORE ELECTIVES
Students must take a minimum of 2 credit hours of courses from the list below, depending on their specific needs and mentor approval.

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>CRSP 500</td>
<td>Design and Analysis of Observational Studies</td>
<td>3</td>
</tr>
<tr>
<td>SYBB 421</td>
<td>Fundamentals of Clinical Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>PQHS 416</td>
<td>Computing in Biomedical Health Informatics</td>
<td>3</td>
</tr>
<tr>
<td>PQHS 426</td>
<td>An Introduction to GIS for Health and Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PQHS 450</td>
<td>Clinical Trials and Intervention Studies</td>
<td>3</td>
</tr>
<tr>
<td>PQHS 467</td>
<td>Comparative and Cost Effectiveness Research</td>
<td>1</td>
</tr>
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</table>

ELECTIVES
Students will take electives to satisfy the graded and pass/fail course requirements and to advance to candidacy. These courses are selected based on students' needs and mentor approval. Any CWRU credit-bearing course may qualify. The courses could be "field specific" or include other core elective courses not taken as part of the requirement above.

RESEARCH COMPONENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRSP 701</td>
<td>Dissertation Ph.D.</td>
<td>18</td>
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</table>

Total Hours 18

Important Note: The program information contained on this page is current as of July 1st, 2022. For the most current information, we advise you to review the PhD in Clinical Translational Science program handbook. You can find the most recent Program Handbook here.

Sample Plan of Study
(Student without Advanced Research Degree)

First Year
Summer
CRSP 401 Introduction to Clinical Research Summer Series 3

Hours 3

Fall
CRSP 440 Translational & Patient-Oriented Research Theory 3
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
PQHS 431 Statistical Methods I 3
PQHS 490 Epidemiology: Introduction to Theory and Methods 3

Hours 9

Spring
CRSP 412 Communication in Clinical Research - Grant Writing 1
Elective 3
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 550 Meta-Analysis & Evidence Synthesis 2-3
PQHS 432 Statistical Methods II 3

Hours 9-10

Second Year
Fall
CRSP 413 Communication in Clinical Research - Oral Presentation, Posters, and the Mass Media 1
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 501 Team Science - Working in Interdisciplinary Research Teams 1
CRSP 603 Research Ethics and Regulation 2
SYBB 421 Fundamentals of Clinical Information Systems 3
Electives 2

Hours 9

Spring
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0

Electives 6

Hours 6

Third Year
Fall
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 4

Hours 4

Spring
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 5

Hours 5

Fourth Year
Fall
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 4

Hours 4

Spring
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 5

Hours 5

Total Hours 54-55

(Student with Advanced Research Degree)

First Year
Fall
CRSP 440 Translational & Patient-Oriented Research Theory 3
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
Electives 6

Hours 9
Spring
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 550 Meta-Analysis & Evidence Synthesis 2 - 3
Electives 7
Hours 9-10

Second Year
Fall
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 4
Hours 4

Spring
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 5
Hours 5

Third Year
Fall
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
PQHS 701 Dissertation Ph.D. 4
Hours 4

Spring
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 5
Hours 5

Total Hours 36-37

(Student Seeking Dual Degree MD/PhD)

First Year
Summer
MSTP 400 Research Rotation in Medical Scientist Training Program 0
Hours 0

Fall
IBIS 401 Integrated Biological Sciences I 4
MSTP 400 Research Rotation in Medical Scientist Training Program 3
IBIS 411 Clinical Science I 2
Hours 9

Spring
IBIS 402 Integrated Biological Sciences II 4
IBIS 412 Clinical Science II 2
MSTP 400 Research Rotation in Medical Scientist Training Program 3
Hours 9

Fourth Year
Fall
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 413 Communication in Clinical Research - Oral Presentation, Posters, and the Mass Media 1
CRSP 701 Dissertation Ph.D. 6
Hours 7

Spring
CRSP 450 Seminar in Multidisciplinary Clinical & Translational Research 0
CRSP 701 Dissertation Ph.D. 6
Hours 6
Fifth Year

Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CRSP 450</td>
<td>Seminar in Multidisciplinary Clinical &amp; Translational Research</td>
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<tr>
<td>CRSP 701</td>
<td>Dissertation Ph.D.</td>
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<td>Seminar in Multidisciplinary Clinical &amp; Translational Research</td>
<td>0</td>
</tr>
<tr>
<td>CRSP 701</td>
<td>Dissertation Ph.D.</td>
<td>2</td>
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</table>

Total Hours: 73-74

Spring

Dual Degree Options

- Medical Scientist Training Program (MSTP), PhD/Medicine, MD