

# CLINICAL INVESTIGATION, PHD

Clinical investigation is a field in which teams of health care professionals, biostatisticians, and others imagine, design, and conduct clinical research, and then take discoveries to human or animal patient populations in the health care system or in communities.

The focus of the PhD in Clinical Investigation is to enable translational competency among team leaders. In other words, the graduate program trains students to help move research toward solutions for patient populations more quickly. The PhD is one of fewer than 10 offered in the country with this focus.

Applicants ideally will have a health professional degree (MD, DVM, PharmD, PhD, BSN, BSE, MPT, DPT). Clinical Investigation students are unique among UW–Madison graduate students because they enter the program with a terminal degree (with exceptions) and they are seeking training to directly apply their work with patients.

Full-time and part-time enrollment is available. Most core courses meet at 4 p.m. or later to accommodate the schedules of working health professionals.

The graduate program in clinical investigation (GPCI) that offers the PhD is housed in the UW Institute for Clinical and Translational Research (ICTR) and is designed in response to a need for clinical research training programs. The ICTR Clinical and Translational Science Award (CTSA) facilitates UW–Madison's ability to offer a spectrum of graduate programs in clinical research. This applied, clinical, and translational graduate program complements the areas of clinical research training by the population health sciences, nursing, and other graduate programs.

Representatives from the Schools of Medicine and Public Health, Nursing, Pharmacy, and Veterinary Medicine, and the College of Engineering met as a task force in 2006 to design the program. All ICTR academic partners are represented in the curriculum. They are joined by partner Marshfield Clinic as members of the faculty executive committee that guides the program.

The curriculum draws from existing courses in the partner schools and includes new courses developed exclusively for the GPCI. Coursework provides a solid foundation in research methods and analysis, including biostatistics, study design, and ethical conduct. Through electives and a research requirement, students pursue their own areas of specialization in patient-oriented clinical research.

The knowledge and skills acquired while earning a degree in clinical investigation can be applied to jobs in academic institutions; private industry, including pharmaceutical companies, insurers, and managed care organizations; government agencies; non-profit organizations; and a range of local to international organizations.

## ADMISSIONS

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Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed

admissions requirements, which can be found below the table or on the program's website.

Graduate admissions is a two-step process between academic programs and the Graduate School. **Applicants must meet the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) of the Graduate School as well as the program(s).** Once you have researched the graduate program(s) you are interested in, apply online (<https://grad.wisc.edu/apply/>).

| Requirements                       | Detail   |
|------------------------------------|--|
| Fall Deadline                      | February 1   |
| Spring Deadline                    | October 1  |
| Summer Deadline                    | The program does not admit in the summer.  |
| GRE (Graduate Record Examinations) | Not required.  |
| English Proficiency Test           | Every applicant whose native language is not English, or whose undergraduate instruction was not exclusively in English, must provide an English proficiency test score earned within two years of the anticipated term of enrollment. Refer to the Graduate School: Minimum Requirements for Admission policy: <a href="https://policy.wisc.edu/library/UW-1241">https://policy.wisc.edu/library/UW-1241</a> ( <a href="https://policy.wisc.edu/library/UW-1241/">https://policy.wisc.edu/library/UW-1241/</a> ). |
| Other Test(s) (e.g., GMAT, MCAT)   | n/a  |
| Letters of Recommendation Required | 3  |

The program's faculty executive committee considers all aspects of each application. Applicants must meet the minimum requirements of the Graduate School plus those of the program, listed here:

- Have a focused area of interest in patient-oriented clinical research and a passion for continuing in a career in patient-oriented translational and/or clinical research.
- Ideally have a health professional degree (MD, DVM, PharmD, PhD, BSN, BSE, MPT, DPT).
- Identify a primary advisor to mentor and support the applicant throughout graduate study.

Admission will depend in part on identification of a research program that aligns with an applicant's research interests and career goals, an applicant's fit with the program and likelihood of successfully completing a graduate degree. Identification of a faculty advisor and research area of study is a key consideration in the admissions process but does not guarantee admission.

Acceptance into the program does not assure funding.

## FUNDING

### FUNDING GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (<https://grad.wisc.edu/funding/>) is available from the Graduate School.

Be sure to check with your program for individual policies and restrictions related to funding.

## PROGRAM RESOURCES

Prospective PhD students should see the program website (<https://ictr.wisc.edu/graduate-program-in-clinical-investigation/>) for funding information.

## REQUIREMENTS

### MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/#policiesandrequirements>), in addition to the program requirements listed below.

### MAJOR REQUIREMENTS

#### MODE OF INSTRUCTION

| Face to Face | Evening/<br>Weekend | Online | Hybrid | Accelerated |
|--------------|---------------------|--------|--------|-------------|
| Yes          | Yes                 | No     | Yes    | No          |

#### Mode of Instruction Definitions

**Accelerated:** Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

**Evening/Weekend:** Courses meet on the UW-Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

**Face-to-Face:** Courses typically meet during weekdays on the UW-Madison Campus.

**Hybrid:** These programs combine face-to-face and online learning formats. Contact the program for more specific information.

**Online:** These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

### CURRICULAR REQUIREMENTS

#### Requirement Detail

Minimum  
Credit  
Requirement

Minimum  
Residence  
Credit  
Requirement

Minimum  
Graduate  
Coursework  
Requirement

26 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: <https://policy.wisc.edu/library/UW-1244> (<https://policy.wisc.edu/library/UW-1244/>).

Overall  
Graduate  
GPA  
Requirement

3.00 GPA required.  
Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: <https://policy.wisc.edu/library/UW-1203> (<https://policy.wisc.edu/library/UW-1203/>).

Other Grade  
Requirements

Students must earn a B or above in all core curriculum coursework.

Assessments  
and  
Examinations

Oral preliminary exam required.  
Defense of PhD dissertation required. The dissertation is submitted in writing to the degree committee two weeks prior to the defense date, and then defended verbally during the defense meeting.

Language  
Requirements

No language requirements.

Graduate  
School  
Breadth  
Requirement

Doctoral students in Clinical Investigation are not required to complete a doctoral minor or graduate/professional certificate. Breadth is achieved in other areas of the curriculum.

### REQUIRED COURSES

| Code                                     | Title  | Credits |
|--|--|---------|
| Students complete the following courses. |  |         |
| B M I/STAT 542                           | Introduction to Clinical Trials I  | 3       |
| POP HLTH 709                             | Translational and Outcomes Research in Health and Health Care            | 3       |
| POP HLTH/<br>SOC 797                     | Introduction to Epidemiology   | 3       |
| NURSING/<br>MEDICINE/<br>POP HLTH 705    | Seminar in Interdisciplinary Clinical Research Evidence                  | 2-3     |
| H ONCOL 750                              | Multi-disciplinary Patient-Oriented Research Presentation Skills Seminar | 1       |

#### Biostatistics Requirement

Students complete 3-6 credits to fulfill this requirement. Course selections are listed below. 3-6

|                          |   |  |
|--------------------------|---|--|
| B M I/STAT 541           | Introduction to Biostatistics                             |  |
| B M I/<br>POP HLTH 551   | Introduction to Biostatistics for Population Health       |  |
| & B M I/<br>POP HLTH 552 | and Regression Methods for Population Health <sup>1</sup> |  |
| B M I 699                | Independent Study <sup>2</sup>                            |  |

#### Clinical Translational Science Requirement

Students complete 3-credits to fulfill this requirement. Course selections are listed below. 3

|           |   |  |
|-----------|---|--|
| B M I 544 | Introduction to Clinical and Healthcare Research II |  |
| B M I 773 | Clinical Research Informatics                       |  |

#### Research Design Requirement

CTS, stat, or methods courses. Students complete 6-credits to fulfill this requirement. Course must have the "Grad 50%" attribute. Possible course selections are listed below. For additional options, request approval from the program administrator. 6

|  |   |
|--|---|
| SOC/<br>C&E SOC 361  | Statistics for Sociologists II                    |
| B M I/<br>POP HLTH 552   | Regression Methods for Population Health          |
| B M I/ I SY E 617  | Health Information Systems                        |
| B M I/<br>POP HLTH 651   | Advanced Regression Methods for Population Health |
| B M I/STAT 741   | Survival Analysis Theory and Methods              |
| B M I/<br>COMP SCI 767   | Computational Methods for Medical Image Analysis  |
| B M I/<br>COMP SCI 771   | Learning Based Methods for Computer Vision        |
| B M I/<br>COMP SCI 775   | Computational Network Biology                     |
| B M I/COMP SCI/<br>PSYCH 841                                     | Computational Cognitive Science                   |
| NURSING 804  | Qualitative Design and Methods                    |
| CURRIC/<br>COUN PSY/<br>ED POL/<br>ED PSYCH/ELPA/<br>RP & SE 719 | Introduction to Qualitative Research              |
| ED PSYCH 761   | Statistical Methods Applied to Education II       |
| ED PSYCH 771   | Test Construction                                 |

#### Grant Writing Requirement

Students complete one course to fulfill this requirement. Course must have the "Grad 50%" attribute. Possible course selections are listed below. For additional options, request approval from the program administrator. 2

|             |  |
|-------------|--|
| S&A PHM 701 | Grant Writing for Health Services Research   |
| CS&D 900    | Seminar-Speech Science (Topic: Research Career Development Seminar on Grant Writing) |

#### Responsible Conduct for Research Requirement

Students complete one of following courses to fulfill this requirement. 1-2

|              |  |
|--------------|--|
| MED PHYS 701 | Ethics and the responsible conduct of research and practice of Medical Physics |
| ONCOLOGY 715 | Ethics in Science  |
| PHARMACY 800 | Research Ethics: Scientific Integrity and the Responsible Conduct of Research  |
| NURSING 802  | Ethics and the Responsible Conduct of Research                                 |
| SURG SCI 812 |  |
| OBS&GYN 955  | Responsible Conduct of Research for Biomedical Graduate Students               |
| OBS&GYN 956  | Advanced Responsible Conduct of Research for Biomedical Students               |

#### Research or Elective Courses

Additional courses or research credits (e.g., MED 990)

**Total Credits** 51

<sup>1</sup> Students who complete this 6-credit sequence are required to take fewer research credits to compensate.

<sup>2</sup> The 1-credit B M I 699 Independent Study is for students with instructor consent who have prior statistics (no biostatistics coursework). Students who take this option must also complete 2 credits of another biostatistics course chosen in consultation with the program faculty director.

## POLICIES

### GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy/>) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

### MAJOR-SPECIFIC POLICIES

#### PRIOR COURSEWORK

##### Graduate Credits Earned at Other Institutions

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

##### Undergraduate Credits Earned at Other Institutions or UW-Madison

No credits from a UW-Madison or another institution's undergraduate degree may transfer.

##### Credits Earned as a Professional Student at UW-Madison (Law, Medicine, Pharmacy, and Veterinary careers)

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

##### Credits Earned as a University Special student at UW-Madison

Because the program provides flexibility to clinical professionals who frequently begin their graduate careers part time as Special students, this program refers to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

#### PROBATION

Refer to the Graduate School: Probation (<https://policy.wisc.edu/library/UW-1217/>) policy.

#### ADVISOR / COMMITTEE

PhD students select their faculty advising (degree) committees by the end of the first year in the program. Students and the advisors who sign the Proposed Degree Committee form are asked to meet annually or more; dissertators (post-preliminary exam) twice a year or more.

#### CREDITS PER TERM ALLOWED

12 credits

#### TIME LIMITS

Doctoral students are expected to pass the final oral examination and deposit the dissertation no later than five years from the date of passing

the preliminary examination. The oral examination is the oral defense of the completed dissertation. Full-time students generally complete the dissertation within two years of the preliminary examination. Part-time students may take longer.

Refer to the Graduate School: Time Limits (<https://policy.wisc.edu/library/UW-1221/>) policy.

## GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>)
- Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/#grievance-procedure>)
- Hostile and Intimidating Behavior Policies and Procedures (<https://hr.wisc.edu/hib/>)
  - Office of the Provost for Faculty and Staff Affairs (<https://facstaff.provost.wisc.edu/>)
- Employee Assistance (<http://www.eao.wisc.edu/>) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (<https://employeedisabilities.wisc.edu/>) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (<https://grad.wisc.edu/>) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (<https://compliance.wisc.edu/>) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office Student Assistance and Support (OSAS) (<https://osas.wisc.edu/>) (for all students to seek grievance assistance and support)
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (<https://compliance.wisc.edu/titleix/>) (for concerns about discrimination)

### Grievance Policy for Graduate Programs in the School of Medicine and Public Health

Any student in a School of Medicine and Public Health graduate program who feels that they have been treated unfairly in regards to educational decisions and/or outcomes or issues specific to the graduate program, including academic standing, progress to degree, professional activities, appropriate advising, and a program's community standards by a faculty member, staff member, postdoc, or student has the right to complain about the treatment and to receive a prompt hearing of the grievance following these grievance procedures. Any student who discusses, inquires about, or participates in the grievance procedure may do so openly and shall not be subject to intimidation, discipline, or retaliation because of such activity. Each program's grievance advisor is listed on the "Research" tab of the SMPH intranet (<https://intranet.med.wisc.edu/>).

#### Exclusions

This policy does not apply to employment-related issues for Graduate Assistants in TA, PA and/or RA appointments. Graduate Assistants will utilize the Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/>) (GAPP) grievance process to resolve employment-related issues.

This policy does not apply to instances when a graduate student wishes to report research misconduct. For such reports refer to the UW-Madison Policy for Reporting Research Misconduct for Graduate Students and Postdoctoral Research Associates (<https://research.wisc.edu/kb-article/?id=84924>).

#### Requirements for Programs

The School of Medicine and Public Health Office of Basic Research, Biotechnology and Graduate Studies requires that each graduate program designate a grievance advisor, who should be a tenured faculty member, and will request the name of the grievance advisor annually. The program director will serve as the alternate grievance advisor in the event that the grievance advisor is named in the grievance. The program must notify students of the grievance advisor, including posting the grievance advisor's name on the program's Guide page and handbook.

The grievance advisor or program director may be approached for possible grievances of all types. They will spearhead the grievance response process described below for issues specific to the graduate program, including but not limited to academic standing, progress to degree, professional activities, appropriate advising, and a program's community standards. They will ensure students are advised on reporting procedures for other types of possible grievances and are supported throughout the reporting process. Resources (<https://grad.wisc.edu/current-students/#reporting-incidents>) on identifying and reporting other issues have been compiled by the Graduate School.

#### Procedures

1. The student is advised to initiate a written record containing dates, times, persons, and description of activities, and to update this record while completing the procedures described below.
2. If the student is comfortable doing so, efforts should be made to resolve complaints informally between individuals before pursuing a formal grievance.
3. Should a satisfactory resolution not be achieved, the student should contact the program's grievance advisor or program director to discuss the complaint. The student may approach the grievance advisor or program director alone or with a UW-Madison faculty or staff member. The grievance advisor or program director should keep a record of contacts with regards to possible grievances. The first attempt is to help the student informally address the complaint prior to pursuing a formal grievance. The student is also encouraged to talk with their faculty advisor regarding concerns or difficulties.
4. If the issue is not resolved to the student's satisfaction, the student may submit a formal grievance to the grievance advisor or program director in writing, within 60 calendar days from the date the grievant first became aware of, or should have become aware of with the exercise of reasonable diligence, the cause of the grievance. To the fullest extent possible, a grievance shall contain a clear and concise statement of the grievance and indicate the issue(s) involved, the relief sought, the date(s) the incident or violation took place, and any specific policy involved.
5. On receipt of a written grievance, the following steps will occur. The final step must be completed within 30 business days from

the date the grievance was received. The program must store documentation of the grievance for seven years. Significant grievances that set a precedent may be stored indefinitely.

- a. The grievance advisor or program director will convene a faculty committee composed of at least three members to manage the grievance. Any faculty member involved in the grievance or who feels that they cannot be impartial may not participate in the committee. Committee composition should reflect diverse viewpoints within the program.
  - b. The faculty committee, through the grievance advisor or program director, will obtain a written response from the person or persons toward whom the grievance is directed. The grievance advisor or program director will inform this person that their response will be shared with the student filing the grievance.
  - c. The grievance advisor or program director will share the response with the student filing the grievance.
  - d. The faculty committee will make a decision regarding the grievance. The committee's review shall be fair, impartial, and timely. The grievance advisor or program director will report on the action taken by the committee in writing to both the student and the person toward whom the grievance was directed.
6. If either party (the student or the person or persons toward whom the grievance is directed) is unsatisfied with the decision of the program's faculty committee, the party may file a written appeal to the SMPH senior associate dean for basic research, biotechnology and graduate studies within 10 business days from the date of notification of the program's faculty committee. The following steps will occur:
- a. The grievant will be notified in writing, within 5 business days of the written appeal, acknowledging receipt of the formal appeal and establishing a timeline for the review to be completed.
  - b. The senior associate dean or their designee may request additional materials and/or arrange meetings with the grievant and/or others. If meetings occur, the senior associate dean or their designee will meet with both the grievant and the person or persons toward whom the grievance is directed.
  - c. The senior associate dean or their designee will assemble an ad hoc committee of faculty from outside of the student's graduate program and ask them to prepare a written recommendation on whether to uphold or reverse the decision of the program on the student's initial grievance. The committee may request additional materials and/or arrange meetings with the grievant and/or others. If meetings occur, the committee will meet with both the grievant and the person or persons toward whom the grievance is directed.
  - d. The senior associate dean or their designee will make a final decision within 20 business days of receipt of the committee's recommendation.
  - e. The SMPH Office of Basic Research, Biotechnology, and Graduate Studies must store documentation of the grievance for seven years. Grievances that set a precedent may be stored indefinitely.

7. The student may file an appeal of the School of Medicine and Public Health decision with the Graduate School. See the Grievances and Appeals section of the Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/documents/grievances-and-appeals/>).

### Time Limits

Steps in the grievance procedures must be initiated and completed within the designated time periods except when modified by mutual consent. If the student fails to initiate the next step in the grievance procedure within the designated time period, the grievance will be considered resolved by the decision at the last completed step.

### OTHER

Full-time PhD students and dual degree students are eligible for NIH funding. Students must obtain a faculty advisor, and write a detailed personal statement that demonstrates working knowledge of clinical and/or translational research. No rotations are offered.

## PROFESSIONAL DEVELOPMENT

### PROFESSIONAL DEVELOPMENT GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (<https://grad.wisc.edu/pd/>) to build skills, thrive academically, and launch your career.

### PROGRAM RESOURCES

See the ICTR website (<https://ictr.wisc.edu/>) for more information.

## LEARNING OUTCOMES

### LEARNING OUTCOMES

1. Lead to translation of research among the laboratory, clinic and population through technological or systems innovations, including but not limited to drug therapies, medical devices, biological materials, clinical processes, and/or behavioral interventions.
2. Are appropriately patient-oriented.
3. Draw on the expertise of collaborators in multiple disciplines.
4. Integrate clinical and translational science across multiple departments, schools and colleges, clinical and research institutes, and healthcare delivery organizations.
5. Determine when it is appropriate to use a patient-oriented research design to investigate a translational clinical problem.
6. Analyze, interpret and report research findings of clinical studies through peer-reviewed scientific channels and to a lay audience.
7. Disseminate knowledge through teaching and mentoring students/trainees.
8. Apply and foster professional, ethical and responsible conduct of clinical research.

## PEOPLE

### PEOPLE

See Faculty (<https://ictr.wisc.edu/graduate-program-in-clinical-investigation-faculty-advisors/>).