

CLINICAL AND HEALTH INFORMATICS, M.S.

The online Master of Science degree in Clinical and Health Informatics gives students a solid foundation in healthcare decision-making using methods developed from study of biomedical informatics, healthcare operations management, industrial systems engineering, nursing, pharmacy, and population health.

Based in UW-Madison's Institute for Clinical and Translation Research, this online graduate degree program provides students with an interdisciplinary approach to develop innovative solutions and improve current practices in health policy, clinical practice, data security, and biomedical and health information systems.

The program is designed to serve professionals for clinical or information technology-related work in the healthcare industry. Graduates will be ready to meet the growing workforce demand for informaticists.

Further detail, including tuition and costs, is provided here (<https://pdc.wisc.edu/degrees/clinical-health-informatics/>).

ADMISSIONS

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	August 1
Spring Deadline	December 15
Summer Deadline	April 15
GRE (Graduate Record Examinations)	Not required.
English Proficiency Test	Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (https://grad.wisc.edu/apply/requirements/#english-proficiency).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	2

PROGRAM ADMISSION

Applicants to our Master of Science degree program must meet the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) of the UW-Madison Graduate School, as well as those of our CHI program:

- Personal Statement - Tell us more about you, your interest in this profession, and why you wish to earn a graduate degree in CHI. You may also note any (or none) of the following information:
 - What will make you successful in CHI graduate program coursework?
 - What challenges do you anticipate facing while being a graduate student? What support might you need?
 - What unusual circumstances would you like considered when faculty review your application? This may include reasons for past academic performance, career changes, life challenges, etc.
- CV/Resume
- 2 letters of recommendation
- Successful completion of a college level statistics course, analytical/computational course, or equivalent work experience

While not required, you will benefit from having:

- work experience in information technology, statistics, computer science, health care, or similar field(s) – or are highly motivated to pursue a career change
- a focused area of interest in informatics, data analytics, clinical care or research, health information technology or similar fields

Contact learn@ictr.wisc.edu if you have any questions, check out the Graduate School's Admissions FAQ (<https://grad.wisc.edu/apply/>) page, or complete the online application (<https://grad.wisc.edu/apply/>).

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 INFORMATION

Students enrolled in this program are not eligible to receive tuition remission from graduate assistantship appointments at this institution.

You may, however, qualify for a fee grant for the application fee. <https://grad.wisc.edu/apply/fee-grant/>

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/>)

#policiesandrequirements text), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
No	No	Yes	No	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

Requirements	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	18 credits
Minimum Graduate Coursework Requirement	15 credits must be graduate-level coursework. Details can be found in the Graduate School's Minimum Graduate Coursework (50%) policy (https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/)).
Overall Graduate GPA Requirement	3.00 GPA required. This program follows the Graduate School's policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).
Other Grade Requirements	None.
Language Requirements	None.
Assessments and Examinations	The program assessments are in the form of case study presentations and strategic planning for data analysis and feedback. During the final semester, students complete a final project in the capstone course. The summative project is assessed for meeting required competencies.

REQUIRED COURSES

Code	Title	Credits
B M I 573	Foundations of Data-Driven Healthcare	3
E P D 706	Change Management	1

IS Y E 557	Human Factors Engineering for Healthcare Systems	3
NURSING 702	Health Promotion and Disease Prevention in Diverse Communities	3
NURSING 715	Evaluation of Health Informatics Solutions	3
NURSING 772	Leadership and Organizational Decision-Making in Health Care	3
OTM 753	Healthcare Operations Management	3
PHM PRAC 617	Health System Pharmacy Data Analysis and Informatics	2
POP HLTH 709	Translational and Outcomes Research in Health and Health Care	3
POP HLTH 795	Principles of Population Health Sciences	3
MEDICINE 750	Capstone Project in Clinical and Health Informatics	3

Total Credits **30**

Students in this program may not take courses outside the prescribed curriculum without faculty advisor and program director approval. Students in this program cannot enroll concurrently in other undergraduate or graduate degree programs.

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 Work from Other Institutions

If applicable to the program completing, and with program approval, students are allowed to count no more than 12 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to the master's degree is not allowed to satisfy requirements.

UW–Madison Undergraduate

If applicable to the program completing and with program approval, 6 credits of coursework numbered 300 or above from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

UW–Madison University Special

With program approval, students are allowed to count no more than 12 credits of coursework numbered 300 or above taken as a UW–Madison special student. If necessary to meet the Graduate School minimum graduate credit requirements for the degree, special student coursework may need to be converted to graduate credits. Once converted, students are assessed the difference in tuition between special and graduate

tuition. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

PROBATION

This program follows the Graduate School's Probation policy (<https://policy.wisc.edu/library/UW-1217/>).

ADVISOR / COMMITTEE

An advisor is assigned to incoming students and will work with students individually to ensure they are making satisfactory progress toward a degree.

CREDITS PER TERM ALLOWED

12 credits

TIME LIMITS

This program follows the Graduate School's Time Limits policy (<https://policy.wisc.edu/library/UW-1221/>).

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/>)
- Dean of Students Office (<https://doso.students.wisc.edu/>) (for all students to seek grievance assistance and support)
- 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://employee disabilities.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 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

n/a

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.

LEARNING OUTCOMES

1. Health: Describe and explain background knowledge of the history, goals, methods and challenges of the major health sciences, including human biology, genomics, clinical and translational science, healthcare delivery, personal health and population health.
2. Information Science and Technology: Demonstrate background knowledge of concepts, terminology, methods and tools of information science and technology for managing and analyzing data, information and knowledge.
3. Social and Behavioral Science: Evaluate the effects of social, behavioral, legal, psychological, management, cognitive, and economic theories, methods, and models applicable to health informatics from multiple levels including individual, social group, and society.
4. Health Information Science and Technology: Determine concepts and recognize tools for managing and analyzing biomedical and health data, information, and knowledge. Key foci include systems design and development, standards, integration, interoperability, and protection of biomedical and health information.
5. Human Factors and Socio-technical Systems: Apply social behavioral theories and human factors engineering to better understand the interaction between users and information technologies within the organizational, social, and physical contexts of their lives, and apply this understanding in information system design.

6. Social and Behavioral Aspects of Health: Evaluate and apply social determinants of health and patient-generated data to analyze problems arising from health or disease, to recognize the implications of these problems on daily activities, and to recognize and/or develop practical solutions to managing these problems.
7. Social, Behavioral, and Information Science and Technology Applied to Health: Appraise the diverse foundation concepts and facets in order to develop integrative approaches to the design, implementation, and evaluation of health informatics solutions.
8. Professionalism: Demonstrate conduct that reflects the aims or qualities that characterize a professional person encompassing especially a defined body of knowledge and skills and their lifelong maintenance as well as adherence to an ethical code.
9. Interprofessional Collaborative Practice: Exhibit behavior that reflects the foundations of values/ethics, roles/responsibilities, interprofessional communication practices, and interprofessional teamwork for team-based practice.
10. Leadership: Demonstrate the following characteristics: credibility, honest, competence, ability to inspire, and ability to formulate and communicate a vision.

PEOPLE

PROGRAM STAFF:

- Jack Champeau, MSM, Professional Programs Director, Clinical and Health Informatics
- Rachel Sauer, MS, Student Services and Program Coordinator, Clinical and Health Informatics

FACULTY MENTOR:

- Heidi Twedt, MD, Clinical Professor, Department of Medicine, Academic Director of Clinical & Health Informatics

FACULTY CONTRIBUTORS:

- Ann Wieben, PhD RN-BC, MS, BSN Postdoctoral Trainee and Clinical Assistant Professor, School of Nursing
- Elizabeth S Burnside, MD, MPH, MS, Professor, Radiology, Associate Dean of Team Science and Interdisciplinary Research, Deputy Executive Director for the Institute for Clinical and Translational Research
- Elliot Tebbe, PhD, LP, MS, Assistant Professor, School of Nursing
- Fazel Hayati, PhD, MS, Lecturer, Wisconsin School of Business
- Jack Temple, PharmD, MS, Director, Pharmacy Business Services and Informatics
- Jomol Mathew, PhD, Chief of Biomedical Informatics, Director of the UW Clinical & Health Informatics Institute, Visiting Associate Professor of Population Health Sciences
- Mark W Craven, PhD, Professor, Departments of Biostatistics and Medical Informatics and Computer Science
- Roberta Pawlak, PhD, RN, NEA-BC, Clinical Professor, School of Nursing
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