

# CELLULAR AND MOLECULAR PATHOLOGY, M.S.

The graduate program in cellular and molecular pathology (CMP) is a joint venture of the UW-Madison Department of Pathology and the School of Medicine and Public Health (SMPH). This interdisciplinary training environment, embedded in an exciting and challenging basic and clinical translational research context, offers a high level of intellectual stimulation for predoctoral training. The CMP curriculum is novel at the university, providing integrated training in fundamental concepts of modern pathobiology with an emphasis on biochemical, cellular and molecular approaches, and providing rigorous in-depth bench-level research training in understanding the fundamental bases of diseases. Trainees and trainers participate in rigorous pathobiology courses and activities, and are offered in-depth research training in the pathobiology of cancer, nervous and immune system diseases, and signal transduction in basic disease mechanisms.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (<http://guide.wisc.edu/graduate/pathology/cellular-molecular-pathology-phd/>)

## 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.

## 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/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	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

### Requirement Detail

Minimum Credit Requirement 30 credits

Minimum Residence Credit Requirement 16 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 GPA Requirement policy (<https://policy.wisc.edu/library/UW-1203> (<https://policy.wisc.edu/library/UW-1203/>)).

Other Grade Requirements Students must maintain a B average or better in all graduate courses.

Assessments and Examinations Students must complete all required courses including PATH 809. Students must write a master thesis and defend it in front of their Advisory Committee. The M.S. thesis does not need to be published.

Language Requirements No language requirements.

## REQUIRED COURSES

Code	Title	Credits
<b>Required Courses</b>		
<i>Continuous Enrollment</i>		
PATH 900	Seminar (every semester enrolled)	0
PATH 901	Student Seminar / Journal Club (every semester enrolled)	1
PATH 990	Research (every semester enrolled)	1-8
<i>Coursework</i>		
PATH 750	Cellular and Molecular Biology/ Pathology (spring semester, first year in program)	3

PATH 802	Histopathology for Translational Scientists (fall semester, first year in program)	3
PATH 803	Pathogenesis of Major Human Diseases (fall semester, second year in program)	3
PATH 809	Molecular Mechanisms of Disease (spring semester, second year in program)	2
<i>Complete the following Ethics courses:<sup>1</sup></i>		
PATH 755	Responsible Conduct in Research: Research Ethics, Rigor, Reproducibility and Transparency	2
OBS&GYN 956	Advanced Responsible Conduct of Research for Biomedical Students	1
<b>Elective Courses</b>		<b>2-3</b>

Within the 16 required credits, students will take one elective course. This course is chosen by the student and the Ph.D. thesis committee. The goal of the elective course is for students to acquire additional broad knowledge in either pathology or their major area of research. For the elective course, students may take one of the following:

PATH 751	Biology of Aging
PATH 807	Immunopathology: The Immune System in Health and Disease
Equivalent course approved by the Ph.D. thesis committee	

**Total Credits** 18-26

1

Students in the CMP program are required to take two ethics courses, receiving instruction in the Responsible Conduct of Research (RCR), as stated below by the NIH. Complete PATH 755 during the first semester of the first year. Complete OBS&GYN 956 during the second semester of the third year.

***"The NIH requires that all undergraduate and graduate students as well as postdoctoral fellows receiving support through any NIH training, career development award, research education grant, or dissertation research grant must receive instruction in RCR. At least eight hours of face-to-face instruction is required; online education alone is insufficient. Instruction must be undertaken at least once during each career stage, and no less than once every four years."***

## 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

With program approval, students are allowed to count no more than 7 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### UW-Madison Undergraduate

This program follows the Graduate School's policy for Satisfying Requirements with Coursework from Undergraduate Career at UW-Madison. (<https://policy.wisc.edu/library/UW-1216/>)

#### UW-Madison University Special

With program approval, students are allowed to count no more than 7 credits of coursework numbered 300 or above taken as UW-Madison University Special students. 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

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 17 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.

### CREDITS PER TERM ALLOWED

15 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/departamental 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

All students in the program receive competitive stipends to cover living expenses, tuition and fees from Graduate School fellowships, NIH training grants, or research assistantships funded through the program or the primary investigator. To receive the stipend, the student must maintain full-time status. Health insurance costs are partially covered by the university and provide the same coverage as for faculty and staff.

## 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 INFORMATION

All CMP students are required to engage in a minimum of two professional development activities annually.

## LEARNING OUTCOMES

1. Gain a better understanding the basic mechanisms of disease at the level of cell, organ, and body, as well as the morphologic expression patterns of selected common specific disease processes.
2. Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
3. Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
4. Demonstrates understanding of the primary field of study in a historical, social, or global context.
5. Selects and/or utilizes the most appropriate methodologies and practices.
6. Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
7. Communicates clearly in ways appropriate to the field of study.
8. Commit to increase professional growth and knowledge, to attend educational programs and to personally contribute expertise to meetings and journals.
9. Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Ahmad, Alexander, Allen-Hoffmann, Andes, Arendt, Asimakopoulou, Attie, Atwood, Bendlin, Bresnick, Broman, Burger, Burkard, Burlingham, Bushman, Capitini, Coon, Currie, Deming, Denlinger, Djamali, Emborg, Engin, Evans, Fabry, Jing Fan, Fleming, Friedl, Friedrich, Gamm, Ge, Gern, Gibson, Golos, Greenspan, Gumperz, Guo, Halberg, Hematti, Huttenlocher, Iyer, Jones, Junsu Kang, Kenney, Kimble, Kimple, Klein, Knoll, Kuo, Lakkaraju, Lamming, Lang, Lee, Lewis, Liu, Lloyd, Loeb, Messing, Mezrich, Nett, Nickells, D. O'Connor, S. O'Connor, Okonkwo, Otto, Pepperell, Peters, Puglielli, Rapraeger, Rey, Roy, Rui, Sandor, Samanta, Sauer, Seroogy, Sheehan, Sheibani, Shusta, Shelef, Slukvin, J. Smith, Sondel, Sridharan, Sugden, Suresh, Suzuki, Svaren, Talaat, Taylor, Thorne, Vermuganti, Watters, Welham, Wheeler, Xu, Yoshino, Zamanian, Su-chun Zang, Zhao, W. Zhong