Students are not admitted into the Cellular and Molecular Biology (CMB) Program for a terminal master's degree. However, a master's degree is officially offered. For more information, see the Cellular and Molecular Biology Handbook (https://cmb.wisc.edu/handbook/).

Graduate study in cellular and molecular biology at the University of Wisconsin–Madison is a research-oriented interdisciplinary program leading to the Ph.D. degree. The university has one of the largest and most prestigious biology facilities in the world, well-noted for its cooperation and collaboration across department boundaries. The Cellular and Molecular Biology Program is an important part of that interdepartmental strength, providing students with the opportunity to work with more than 190 faculty members in 40 departments.

A major strength of the program is that it provides the opportunity for groups of investigators to work together on research topics of common interest. Research topic areas, identified as focus groups, are composed of faculty and students studying common research areas. Each group is held together by participation of both students and faculty at regular research presentations and by the participation of faculty on thesis committees of many students in the group. Because of the diverse nature of most research areas and the cross-fertilization among focus groups, many faculty and students participate in the activities of multiple focus groups.

The focus groups are: cancer biology; cell adhesion and cytoskeleton; cellular and molecular metabolism; developmental biology and regenerative medicine; immunology; membrane biology and protein trafficking; molecular and genome biology of microbes; plant biology; RNA; systems biology; transcriptional mechanisms; and virology. For a complete listing of each faculty member associated with each focus group and the corresponding research, see the CMB website (http://www.cmb.wisc.edu/).

The CMB program encourages each student to develop an independent and creative approach to science. These skills can be gained through the program requirements, which include course work and research in the student’s specific area of interest. All CMB students are required to obtain 10 credits in the CMB core curriculum, which consists of both cellular and molecular biology course work, in addition to a 1-credit ethics requirement. Students also take courses and seminars, and participate in journal clubs related to their specific areas of expertise. Research experience is an integral part of the program while completing these requirements. The combination of coursework and research experience allows students to obtain a solid foundation in cellular and molecular biology that is also tailored to the professional objectives of each student. Specific core curriculum requirements can be found at the CMB website (http://www.cmb.wisc.edu/).

**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/#policiesandrequirementstext), in addition to the program requirements listed below.

**MAJOR REQUIREMENTS**

**MODE OF INSTRUCTION**

<table>
<thead>
<tr>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students are able to complete a program with minimal disruptions to careers and other commitments.

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**

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>30 credits</td>
</tr>
<tr>
<td>Minimum Residence Credit Requirement</td>
<td>16 credits</td>
</tr>
<tr>
<td>Minimum Graduate Coursework Requirement</td>
<td>Half of degree coursework (15 credits out of 30 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (<a href="https://registrar.wisc.edu/course-guide/">https://registrar.wisc.edu/course-guide/</a>).</td>
</tr>
</tbody>
</table>
Overall Graduate GPA Requirement

Graduate GPA: 3.00 GPA required.

Other Grade Requirements

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

Assessments and Examinations

Contact the program for information on required assessments and examinations.

Language Requirements

Contact the program for information on any language requirements.

REQUIRED COURSES

Eleven credits of coursework, not including 990 research credits, are required to complete the CMB course requirements. One course must be taken from the "core" list of molecular biology courses and one course must be taken from the "core" list of cell biology courses. The remaining credits can come from either the "core" or "elective" list of classes to bring the total number of credits to 10. In addition, 1 credit must be fulfilled through the required ethics course. All CMB course requirements must be completed by the end of the student's second year, before completing the preliminary exam and obtaining dissertator status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Molecular Biology Core</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Choose one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOCHEM/GENETICS/MD GENET 620</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eukaryotic Molecular Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOCHEM/GENETICS/MICROBIO 612</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prokaryotic Molecular Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ONCOLOGY/PL PATH 640</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Virology-Multiplication of Viruses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cell Biology Core</td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td>Choose one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BOTANY 860</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant Cell Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ZOOLOGY/NEURODPT/NTP 765</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Developmental Neuroscience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PATH 750</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cellular and Molecular Biology/Pathology</td>
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<tr>
<td></td>
<td>ONCOLOGY 703</td>
<td></td>
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<tr>
<td></td>
<td>Carcinogenesis and Tumor Cell Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethics Core</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>BIOCHEM 729</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advanced Topics</td>
<td></td>
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<tr>
<td></td>
<td>ONCOLOGY 715</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethics in Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SURG SCI 812</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Ethics and Career Development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remaining credits can come from either the core or elective list of classes to bring the total number of credits to eleven. Elective Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEURODPT 700</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cytoskeletal Dynamics</td>
<td>4-5</td>
</tr>
</tbody>
</table>

B M E/CBE 510 Introduction to Tissue Engineering
B M E/CBE 520 Stem Cell Bioengineering
B M E/CBE 783 Design of Biological Molecules
B M E 545 Engineering Extracellular Matrices
B M E 556 Systems Biology: Mammalian Signaling Networks
B M I/STAT 541 Introduction to Biostatistics
B M I/STAT 877 Statistical Methods for Molecular Biology
B M I 826 Special Topics in Biostatistics and Biomedical Informatics
BOTANY/BIOCHEM/GENETICS 840 Regulatory Mechanisms in Plant Development
BIOCHEM/BOTANY 621 Plant Biochemistry
BIOCHEM/CHM 665 Biophysical Chemistry
BIOCHEM/NUTR SCI 619 Advanced Nutrition: Intermediary Metabolism of Macronutrients
BIOCHEM/PHMCOL-M/ZOOLOGY 630 Cellular Signal Transduction Mechanisms
BIOCHEM 601 Protein and Enzyme Structure and Function
BMOLCHEM 675 Advanced or Special Topics in Biomolecular Chemistry
BOTANY/ENTOM/PL PATH 505 Plant-Microbe Interactions: Molecular and Ecological Aspects
CRB/MEDICINE 701 Cell Signaling and Human Disease
CRB 610 Fundamentals of Mammalian Embryology
CRB 640 Fundamentals of Stem Cell and Regenerative Biology
CRB 650 Molecular and Cellular Organogenesis
F&W ECOL/HORT/STAT 571 Statistical Methods for Bioscience I
GENETICS/HORT 550 Molecular Approaches for Potential Crop Improvement
GENETICS/MD GENET 677 Advanced Topics in Genetics
GENETICS 631 Plant Genetics
GENETICS 633 Population Genetics
M M & I 555 Vaccines: Practical Issues for a Global Society
M M & I 740 Mechanisms of Microbial Pathogenesis
M M & I/PATH-BIO 750 Host-Parasite Relationships in Vertebrate Viral Disease
MED PHYS 671 Selected Topics in Medical Physics
MICROBIO 625 Advanced Microbial Physiology
MICROBIO/BMOLCHEM 668 Microbiology at Atomic Resolution
MICROBIO 607 Advanced Microbial Genetics
All requests evaluated on case-by-case basis.

PRIOR COURSEWORK

MAJOR-SPECIFIC 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.

Policies

GRADUATE SCHOOL POLICIES

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MAJOR-SPECIFIC POLICIES

PRIOR COURSEWORK

Graduate Work from Other Institutions

Does not appear on UW–Madison transcript or count toward graduate GPA. The minimum residence requirement can be satisfied only with courses taken as a graduate student at UW–Madison, with the exception being graduate-level work taken as a CIC traveling scholar. These requests evaluated on case-by-case basis.

UW–Madison Undergraduate

The program may accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, or graduate degree requirements on occasion. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. All requests evaluated on case-by-case basis.

PROBATION

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 level or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

ADVISOR / COMMITTEE

The thesis advisor will assist the graduate student throughout the duration of their studies. Upon choosing a thesis advisor, the student should formulate goals and expectations when starting in a permanent lab home. The student and thesis advisor should work together to ensure that mutual goals and expectations are met. The thesis advisor will monitor and guide the student's progress toward their degree, provide the student with advice about how and when to meet the degree requirements of the program, and help the student decide on appropriate coursework during their studies.

After joining a thesis lab, students are required to form a thesis committee. The purpose of the thesis committee is to: guide the student through the process of earning their degree and meeting all CMB program requirements; assist the student in developing as an independent scientist in the student's area of research; provide the student with an array of ideas and opportunities regarding the direction of their research and thesis project; and evaluate the student's research proposal, attend curriculum certification, preliminary exam, annual progress report, and thesis defense.

The thesis committee consists of five faculty members, including the thesis advisor. All committee members must be readers when the student defends their dissertation. Three committee members, including the thesis advisor, must be faculty trainers in the CMB program. Two committee members must be outside the student's direct area of expertise.

CREDITS PER TERM ALLOWED

15 credits

TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

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://dosostudents.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://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 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)

OVERVIEW
If a student feels unfairly treated or aggrieved by faculty, staff, or another student, the University offers several avenues to resolve the grievance. Students’ concerns about unfair treatment are best handled directly with the person responsible for the objectionable action. If the student is uncomfortable making direct contact with the individual(s) involved, they should contact the advisor or the person in charge of the unit where the action occurred (CMB Program Administration or Chair, Lab Department Administration or Chair, Lab Manager, etc.). Many departments and schools/colleges have established specific procedures for handling such situations; check their web pages for more information. If such procedures exist at the local level, these should be investigated first.

For more information, see the Graduate School Academic Policies and Procedures. (http://grad.wisc.edu/acadpolicy/#grievancesandappeals)

PROCEDURE
Procedures for proper accounting of student grievances within the CMB Program:

• The student is encouraged to speak first with the person toward whom the grievance is directed to see if a situation can be resolved at this level.
• Should satisfactory resolution not be achieved, the student should contact the CMB Office and the CMB Program Chair to discuss the grievance. The program will facilitate problem resolution through informal channels and facilitate any complaints or issues of students. The first attempt is to help the student informally address the grievance prior to any formal complaint. Students are also encouraged to talk with their faculty advisor or thesis committee members if appropriate. University resources for sexual harassment, discrimination, disability accommodations and other related concerns can be found on the UW Office of Equity and Diversity website (https://oed.wisc.edu/).
• The Graduate School (http://grad.wisc.edu/)
• McBurney Disability Resource Center (http://mcburney.wisc.edu/)
• Employee Assistance Office (http://eao.wisc.edu/)
• Ombuds Office (http://ombuds.wisc.edu/)
• University Health Services (http://uhs.wisc.edu/)
• UW Office of Equity and Diversity (https://oed.wisc.edu/)
• If the issue is not resolved to the student’s satisfaction, the student can submit the grievance to the CMB Office and CMB Program Chair in writing, within 60 days of the alleged unfair treatment.
• On receipt of a written complaint, a faculty committee will be convened by the CMB Program to manage the grievance. The program faculty committee will obtain a written response from the person toward whom the complaint is directed. This response will be shared with the person filing the grievance.
• The faculty committee will determine a decision regarding the grievance. The CMB Program will report on the action taken by the committee in writing to both the student and the party toward whom the complaint was directed.
• At this point, if either party (the student or the person toward whom the grievance is directed) is unsatisfied with the decision of the faculty committee, the party may file a written appeal. Either party has 10 working days to file a written appeal to the school/college.

The Graduate School has procedures for students wishing to appeal a grievance decision made at the school/college level. These policies are described in the Graduate School’s Academic Policies and Procedures. (https://grad.wisc.edu/documents/grievances-and-appeals/)

OTHER
CMB students all earn a stipend that is set by the program each year, and tuition is covered. First year rotating students are funded through the CMB program during the first semester. After the first semester, students are typically funded by their thesis advisor. In some cases, students earn individual fellowships or training grant slots and are funded through these mechanisms. Please contact the CMB program for specific questions about stipend level, etc.

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. Gain a broad understanding of the cellular and molecular principles that underlie biological processes.
2. Develop proficiency in a chosen area of cellular and molecular biology.
3. Learn to think critically and problem solve to address research challenges using a broad range of theories, research methods, and approaches to scientific inquiry.
4. Create research and scholarship that makes a substantive contribution to the field of cellular and molecular biology.
5. Experience collaboration with scientists within the lab, the department, the program, the university, and beyond.
6. Clearly and effectively communicate scientific ideas and research to both scientists and non-scientists in written and oral forms.
7. Exhibit and foster ethical and professional conduct.
8. Gain exposure to potential career paths and develop leadership and professional skills that will prepare them for a successful and rewarding career.

PEOPLE

**Faculty Chairs:** David Wassarman (program chair), Barak Blum (admissions chair), Curtis Brandt (advising and orientation chair), Donna Peters (curriculum chair), Caroline Alexander (awards chair), Tim Gomez (training grant liaison)

**Focus Group Chairs:** Caroline Alexander (Cancer Biology), Jill Wildonger (Cell Adhesion and Cytoskeleton), David Pagliarini (Cellular and Molecular Metabolism), Anne Griep (Developmental Biology and Regenerative Medicine), Jyoti Watters (Immunology), Guy Groblewski (Membrane Biology and Protein Trafficking), Robert Landick (Molecular and Genome Biology of Microbes), Jean-Michel Ane (Plant Biology), David Brow (RNA), Megan McClean (Systems Biology), Melissa Harrison (Transcriptional Mechanisms), Paul Ahlquist (Virology).

For a list of all participating faculty, see the program website (http://www.cmb.wisc.edu).