CELLULAR AND MOLECULAR BIOLOGY, M.S.

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. Students are not admitted to the master’s degree program. 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 (CMB) 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 11 credits in the CMB core curriculum, which consists of both cellular and molecular biology course work, in addition to a 1-credit ethics requirement. Also, students 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).

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

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<thead>
<tr>
<th>MASTER’S DEGREES</th>
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<td><strong>M.S.</strong></td>
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<tr>
<td><strong>MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT</strong></td>
<td>30 credits</td>
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<tr>
<td><strong>MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT</strong></td>
<td>16 credits</td>
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<tr>
<td><strong>MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT</strong></td>
<td>At least 50% of the 30 required credits for the MS degree must be fulfilled with graduate-level coursework; courses with the Graduate Level Attribute are identified and searchable in the university’s Course Guide (<a href="http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle">http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle</a>).</td>
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<td><strong>PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS</strong></td>
<td>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</td>
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<td><strong>PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE</strong></td>
<td>The program may decide to accept up to 7 credits numbered 300 or above of required or elective courses from undergraduate work completed at UW–Madison towards fulfillment of minimum degree requirements. This is not allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Work will not appear on the graduate career portion of UW–Madison transcript or count toward GPA. Minimum residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. All requests evaluated on case-by-case basis</td>
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<td><strong>PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL</strong></td>
<td>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</td>
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<td><strong>CREDITS PER TERM ALLOWED</strong></td>
<td>15 credits</td>
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<td><strong>PROGRAM-SPECIFIC COURSES REQUIRED</strong></td>
<td>Contact the program for information on any additional required courses</td>
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<td><strong>OVERALL GRADUATE GPA REQUIREMENT</strong></td>
<td>3.00</td>
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| **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.

**PROBATION POLICY**

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 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**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

**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.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**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/graduate-school-wide/cellular-molecular-biology-phd)

**LEARNING OUTCOMES**

**KNOWLEDGE AND SKILLS**

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

**PROFESSIONAL CONDUCT**

- Fosters ethical and professional conduct.

**ADDITIONAL LEARNING GOALS**

- The overriding goal of the program is for students to acquire the ability to perform, design, critique, write about, and speak about research in the fields of cell biology and molecular biology. Knowledge and skills goals will be met through courses and thesis research.

**PEOPLE**

**Faculty:** D. Wassarman (program chair); **Focus Group Chairs:** Alexander (Cancer Biology), Amann (Cell Adhesion and Cytoskeleton), Pagliarini (Cellular and Molecular Metabolism), Griep (Developmental Biology and Regenerative Medicine), McNeel (Immunology), Groblewski (Membrane Biology and Protein Trafficking), Landick (Molecular and Genome Biology of Microbes), Bednarek (Plant Biology), Brow (RNA), Kreeger (Systems Biology), Harrison (Transcriptional Mechanisms), Ahlquist (Virology).

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