CANCER BIOLOGY, M.S.

The graduate program in cancer biology offers a course of study and research leading to the Ph.D. degree. Although a master's degree is offered under special circumstances, students are not admitted for a master's degree.

The Cancer Biology Graduate Program was established at the McArdle Laboratory for Cancer Research in 1940 as the first graduate program in the United States to offer a degree in basic cancer research. The program now includes more than 50 faculty trainers from multiple departments including Oncology, Medicine, Human Oncology, Cell and Regenerative Biology, Medical Microbiology and Immunology, and others. This interdepartmental structure offers students remarkably diverse training opportunities that span the entire breadth of cancer biology research from haploid or diploid genetics, viral and chemical carcinogenesis, eukaryotic cell and molecular biology, virology, molecular toxicology, and whole-animal carcinogenesis. Through the graduate curriculum, students are introduced to the body of knowledge that has been derived directly from experiments on the induction, properties, and therapy of cancer, and receive the necessary background to conduct independent research.

Curriculum requirements are designed to be flexible, providing a maximal opportunity for specialization within this multidisciplinary field. Students learn through core and elective courses; by participation in seminars, conferences, and journal clubs related to their specific areas of expertise; and most important, from their research advisors. Students who join the program select research advisors after conducting a minimum of three monthlong rotations in different laboratories during the first semester. After choosing an advisor, students will also create an advisory committee of five faculty members who will provide guidance throughout the process of earning the Ph.D. degree. The average time to complete the Ph.D. is 5.5 years. The program prepares students for careers in academia, government, and industry.

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.

MASTER’S DEGREES

M.S., with available thesis and non-thesis tracks

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level

Coursework attribute are identified and searchable in the university's Course Guide (http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle).

PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master’s degree or doctoral degree is not allowed to satisfy requirements.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits numbered 300 or above from a UW–Madison undergraduate degree.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison special student. Coursework earned five or more years prior to admission to a Master’s degree is not allowed to satisfy requirements.

CREDITS PER TERM ALLOWED

15 credits

PROGRAM-SPECIFIC COURSES REQUIRED

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONCOLOGY 703</td>
<td>Carcinogenesis and Tumor Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>ONCOLOGY 675</td>
<td>Readings in Cancer Biology</td>
<td></td>
</tr>
<tr>
<td>ONCOLOGY 675</td>
<td>Statistical Problems in Genetics and Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>ONCOLOGY 675</td>
<td>Problems in Cancer Research</td>
<td></td>
</tr>
<tr>
<td>ONCOLOGY 675</td>
<td>Appropriate Conduct in Science</td>
<td></td>
</tr>
<tr>
<td>ONCOLOGY 675</td>
<td>Seminar</td>
<td></td>
</tr>
</tbody>
</table>

OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

OTHER GRADE REQUIREMENTS

Students must earn a B or above in the following courses, otherwise the course must be repeated: ONCOLOGY 703 Carcinogenesis and Tumor Cell Biology and ONCOLOGY 675 Advanced or Special Topics in Cancer Research

PROBATION POLICY

A semester GPA below 3.0 or an incomplete grade (I) will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained or the Incomplete grade is not cleared during the subsequent semester of full-time enrollment, the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

ADVISOR / COMMITTEE

All students are required to have an Advisor. Students must create a certification committee by the end of their first year. Master’s thesis committees must have at least three committee members. Non-thesis
master’s committees must have at least one graduate faculty member from the student’s program.

**ASSESSMENTS AND EXAMINATIONS**
Thesis track—requires a formal thesis.
Non-thesis track—no formal examination required.

**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**
No 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/oncology/cancer-biology-phd)

**LEARNING OUTCOMES**

**KNOWLEDGE AND SKILLS**
- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

**PROFESSIONAL CONDUCT**
- Recognizes and applies principles of ethical and professional conduct.

**PEOPLE**

**Faculty:** Professors Alarid (co-director), Loeb (co-director), Ahlquist, Alexander, Allen-Hoffmann, Beebe, Bradfield, Bresnick, Bushman, Cryns, Drinkwater, Friedl, Friesen, Gould, Griep, Harari, Hoffmann, Huttenlocher, Jarrard, Kalejta, Keely, Kenney, Kiessling, Lambert, McNeel, Mertz, Miyamoto, Mosher, Raines, Rapraeger, Schuler, Shull, Sugden, Xu; Associate Professors Audhya, Kennedy, Marker, Moser, Ricke, Striker, Tibbetts, Wheeler, Xing, Zhang; Assistant Professors Burkard, Halberg, Johannsen, Kimple, Rui, Sherer, Weaver. For the most current list of faculty and descriptions of their research interests, the program website (http://www.cancerbiology.wisc.edu/faculty/faculty.html).