CANCER BIOLOGY, PH.D.

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. 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.

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FUNDING

The program is committed to ensure continuing financial support for all cancer biology Ph.D. students in good standing. Financial support includes a competitive stipend and tuition remission. All graduate students are also eligible for comprehensive health insurance. Ph.D. students are supported from a variety of different sources including research assistantships from faculty research grants, fellowships, and NIH training grants. There is no teaching requirement for cancer biology students; however, many opportunities exist on campus for those who wish to gain teaching experience.

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.

DOCTORAL DEGREES

Ph.D.

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 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 ten or more years prior to admission to a doctoral 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>
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<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>
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<tr>
<td>ONCOLOGY 675</td>
<td>Statistical Problems in Genetics and Molecular Biology</td>
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<tr>
<td>ONCOLOGY 675</td>
<td>Problems in Cancer Research</td>
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<td>ONCOLOGY 675</td>
<td>Appropriate Conduct in Science</td>
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<tr>
<td>ONCOLOGY 675</td>
<td>Seminar</td>
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DOCTORAL MINOR/BREADTH REQUIREMENTS

Minor—not required. Students who wish to complete a minor have the option to do so.

Breadth Requirements—all doctoral students must complete at least three elective courses outside of the required core curriculum. If a
student chooses to complete a minor, the minor coursework may fulfill
the elective requirements.

Students are expected to consult with their advisor/committee
concerning minor/breadth requirements by the end of their first year.

**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 (advisor plus four additional faculty members)
by the end of their first year. After passing their preliminary examination,
students are required to conduct a progress report meeting with their
certification committee each year. Failure to do so may result in a hold
being placed on the student's registration.

**ASSESSMENTS AND EXAMINATIONS**
All doctoral students must pass an oral preliminary examination. All
requirements for a doctoral degree, except for the dissertation, must be
completed at this time.

Six months before the final oral defense, all doctoral students must
present a semifinal dissertation proposal to their committee for approval.

All doctoral students must pass a final oral defense of their doctoral
dissertation and subsequently deposit the dissertation in the Graduate
School.

**TIME CONSTRAINTS**
All doctoral students must pass their preliminary examination by the
end of their second year (August 31). Under special circumstances, a
one-semester extension may be granted when justified in writing by the
student and advisor.

A candidate for a doctoral degree who fails to take the final oral
examination and deposit the dissertation within five years after passing
the preliminary examination may be required to take another preliminary
examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten 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.

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**ADMISSIONS**

Students seeking admission to the program must complete a bachelor's
degree in biology, biochemistry, chemistry, molecular biology, or a related
area from an accredited college or university and should have a grade
point average of at least 3.0 (on a 4.0 scale). The background of the
student should include basic courses in these areas as well as several
advanced courses in chemistry, microbiology, biochemistry, genetics,
physiology, and molecular biology. Prior laboratory research experience is
highly desirable.

Applicants must submit a completed application online, personal
statement (reasons for graduate study), official college transcripts,
Graduate Record Exam (GRE) scores (the subject test is recommended,
but not required), and three letters of recommendation.

**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.

**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, Kiesing, 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).