

# DEPARTMENT OF CANCER BIOLOGY

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The Cancer Biology track within the Biomedical Science Program at the University of Toledo fosters young scientists to become cutting-edge researchers who understand the molecular and genetic basis of cancer and the knowledge to develop improved therapies for human cancer. Students in the Cancer Biology track develop scientific thinking and laboratory skills to approach cancer research questions in ways that will best lead to success. Graduates of the Cancer Biology program move on to become successful scientists and leaders in academic, government, and industrial settings. CAB students may pursue the Doctor of Philosophy (PhD) degree or, after acceptance into the medical school, a combined MD/PhD degree. The Masters' degree in Cancer Biology is not currently offered.

The CAB program faculty research interests and areas of expertise are: 1) Control of tumor cell growth and death, 2) Signal transduction, 3) Mechanisms of cancer cell motility and chemotaxis, 4) Invasion and metastasis, 5) Molecular genetics of cancer risk, 6) Influence of tumor microenvironment on cancer progression and metastasis, 7) Protein trafficking, 8) Epigenetic regulation of oncogenes and tumor suppressor genes. 9) Chromatin remodeling and mechanisms of DNA repair, 10) Nitric oxide signaling alterations in cancer cells and 11) Adipogenesis and pre-adipocyte/adipocyte functions; Role of adipokines in cancer.

Cancer Biology PhD students enroll in a first-year core curriculum that is designed to provide a foundation of knowledge for cutting edge research. The first-year curriculum provides students with a comprehensive overview of molecular and cellular biology, systems pathophysiology, modern research methodology, and statistical analysis. In addition, students complete laboratory rotations during the first two semesters to identify a Cancer Biology major advisor and laboratory for their dissertation research project. PhD students complete three rotations and then may join a Cancer Biology laboratory in the spring semester of their first year. Doctoral students in good academic standing may be supported financially by a tuition scholarship and stipend during their academic training. This financial assistance does not require the student to be a Teaching Assistant for undergraduates, thus enabling the student to more fully concentrate on his/her graduate program.

## Degrees Offered

- Ph.D in Biomedical Science - Cancer Biology (<http://utoledo-public.courseleaf.com/graduate/medicine-life-sciences/departments-divisions/cancer-biology/phd-biomedical-sciences/>)

### CABP 6250 Scientific Communication Skills and Career Goals

[2 credit hours]

Three-fourths of the course will be focused on individual, small group, and whole class participation in communication skills. One fourth of the class will be devoted to information and assessment of individual career options. Web based assessment tools and outside expertise will be recruited for this portion of the class.

**Term Offered:** Spring

### CABP 6270 Advanced Cancer Biology

[3 credit hours]

A comprehensive examination of the cellular and molecular foundation of cancer. Topics to be covered include: neoplasia; epidemiology and etiology; the role of causative agents such as chemicals, radiation, and viruses; cell proliferation, injury, and death; oncogenes; tumor suppressor genes; and an overview of cancer therapy.

**Term Offered:** Spring, Fall

### CABP 6560 Readings in Cancer Biology

[1 credit hour]

A readings and discussion course that will examine classic and current research publications from within the broad realm of cancer biology.

**Term Offered:** Spring

### CABP 6730 Research in Cancer Biology

[1-15 credit hours]

### CABP 6890 Ind Study in Cancer Biology

[1-15 credit hours]

Intensive study in the field of cancer biology including theoretical and experimental work. May be repeated for credit.

**Term Offered:** Spring, Summer, Fall

### CABP 6990 Thesis Research in Cancer Biol

[1-15 credit hours]

### CABP 8250 Scientific Communication Skills and Career Goals

[2 credit hours]

Three-fourths of the course will be focused on individual, small group, and whole class participation in communication skills. One fourth of the class will be devoted to information and assessment of individual career options. Web based assessment tools and outside expertise will be recruited for this portion of the class.

**Term Offered:** Spring

### CABP 8270 Advanced Cancer Biology

[3 credit hours]

A comprehensive examination of the cellular and molecular foundation of cancer. Topics to be covered include: neoplasia; epidemiology and etiology; the role of causative agents such as chemicals, radiation, and viruses; cell proliferation, injury, and death; oncogenes; tumor suppressor genes; and an overview of cancer therapy.

**Term Offered:** Spring, Fall

### CABP 8560 Readings in Cancer Biology

[0.5 credit hours]

This course is designed for Ph.D students to develop professional skills in seminar comprehension, critical peer review, scientific presentation, and communication.

**Term Offered:** Spring, Fall

### CABP 8730 Research in Cancer Biology

[1-15 credit hours]

**CABP 8890 Ind Study in Cancer Biology**

[1-15 credit hours]

Intensive study in the field of cancer biology including theoretical and experimental work. May be repeated for credit.

**Term Offered:** Spring, Summer, Fall

**CABP 9990 Dissertation Research CABP**

[1-15 credit hours]