**Cancer Chemical Biology**

**Doctor of Philosophy (Ph.D.) Degree**

**DEGREE INFORMATION**

**Priority Admission Application Deadlines:**

**Fall:**

Domestic: December 15

International applicant deadlines:

<http://www.grad.usf.edu/majors>

**Minimum Total Hours:** 96

**Level:** Doctoral

**CIP Code:** 26.0911

**Dept. Code:** BIO

**Major/College Codes:** CNB AS

**Approved:** 2001

**CONTACT INFORMATION**

**College:** Arts and Sciences

**Department:** Cell Biology, Microbiology, and Molecular Biology (CMMB)

**Contact Information:** [www.grad.usf.edu](http://www.grad.usf.edu/)

**MAJOR INFORMATION**

The Cancer Chemical Biology Major consists of focused training in Cancer Medicinal Chemistry and Chemical Biology. Students will also receive interdisciplinary training in the broader field of chemistry & biology through coursework and immersion in the Moffitt Cancer Center’s research endeavors. Cancer drug design and discovery will be the key component of the curriculum. The research focuses are (1) design and synthesis of chemical probes to modulate oncogenic targets and pathways, and development of selective chemical probes into novel anticancer drug candidates; and (2) to identify, validate, and characterize targets with therapeutic relevance in refractory and metastatic malignancies.

This Major will provide students a unique foundation of knowledge and practical experience in the rapidly advancing arena of cancer chemical biology. Students will also train alongside individuals studying other areas of cancer biology, providing a unique opportunity to study in a multidisciplinary and highly translational research environment. Graduates of this major will be positioned to enter the technological workforce ready to discover novel probes to unravel the mechanisms underlying oncogenesis and develop innovative anticancer drugs.

The Major is a joint endeavor between the Moffitt Cancer Center and the University of South Florida. Moffitt Cancer Center is located on the campus of the University of South Florida and is a leading institution of basic research, clinical research, and patient treatment with a focused mission “to contribute to the prevention and cure of cancer.” The Moffitt Cancer Center is officially designated as a Comprehensive Cancer Center by the National Cancer Institute of the National Institutes of Health.

**ADMISSION INFORMATION**

Must meet University requirements (see Graduate Admissions) as well as requirements for admission to the major, listed below.

Extensive background in field of chemistry, medicinal chemistry, biochemistry, or pharmaceutical sciences

GRE required for full consideration

GPA of at least 3.00 or greater

Advanced coursework and research experience preferred

**Stipends**

All Cancer Chemical Biology Ph.D. students in good standing will receive a highly competitive stipend. All students also receive student health insurance coverage and direct payment in full of all required tuition and required fees. Please visit the Program’s website for current stipend levels.

**CURRICULUM REQUIREMENTS**

All students are required to successfully complete the required Core Courses. Dissertation Committees may require students to take additional course work if needed to correct deficiencies. In special circumstances the Cancer Biology Education Committee can waive course requirements, if the student has recently completed identical coursework elsewhere. In such instances, the student will be required to take an equal number of other credits in lieu of the waived requirement. Students are required to achieve a minimum GPA of B in all Core courses and maintain an overall GPA of 3.00 (B) in order to remain in good standing.

**Total Minimum Hours: 96 credit hours**

Core – 4 hours

Required Electives – 14 hours

Lab – 2 hours minimum

Other requirements – 18 hours minimum

Dissertation - 24 hours

Other requirements – 36 hours

**Required Core Courses – 4 hours**

PCB 6230 Basics of Molecular Oncology 3

PCB 6932 Bioethics for Cancer Researchers 1

**Required Elective Courses – 14 hours**

BCH 6746 Structural Biology 3

BCS 6939 Selected Topics in Cancer Drug Discovery 3

BSC 6457 Cancer Research Techniques 2

CHM 6250 Advanced Organic Chemistry: Synthesis 3

CHM 6263 Advanced Organic Chemistry: Physical Organic Chemistry 3

**Lab Rotations - 2 Hours minimum**

PCB 6910 Cancer Laboratory Rotations 1-3

During the first year, students will be required to complete laboratory rotations according to their interest. Laboratory rotations are 10 weeks each. Students doing rotations will need to enroll in the laboratory rotation course. If a student has not chosen a major professor after two semesters, they may enroll in an additional summer rotation. Rotations have several purposes. The foremost is to help the students choose a compatible major professor and an exciting research project. A second purpose is for students to develop necessary technical skills. Students will be evaluated by the host professor and the Graduate Advisor will assign a grade to each student at the end of the semester.

**Other Course Requirements: 18 Hours minimum**

BSC 7911 Directed Research 4-12

BCS 6939 Selected Topics in Advances in Cancer Chemical Biology and Cancer Res. 4-12

PCB 6930 Current Topics in Oncology 4-8

**Optional Courses:**

BCS 6939 Selected Topics in Cancer 1-6

**Qualifying Exam**

The required qualifying exam consists of a written research proposal and an oral defense of the proposal by the student.

**Dissertation 24 hours minimum**

BSC 7980 Dissertation

Prior to the dissertation defense, students must have an original first-author research report accepted for publication in a peer reviewed scientific journal**.**

**Other Requirements 37 hours minimum**

Remaining credit hours required to meet the 96 hour minimum for graduation will consist of additional Dissertation hours (BSC7980), Selected Topics in Cancer (BCS6939), and/or Program approved electives.

**COURSES -**  See <http://www.ugs.usf.edu/course-inventory/>