

PHARMACEUTICAL SCIENCES AND URBAN SUSTAINABILITY (PH.D. DUAL-TITLE)

Students admitted to the Ph.D. program in Pharmaceutical Sciences can apply to earn a Ph.D. in Pharmaceutical Sciences with a dual-title in Urban Sustainability. This dual-title degree is designed to prepare researchers and professionals to solve challenging urban problems that require working across disciplines. Students enrolled in this dual-title program take courses that help develop knowledge and skills relating to urban sustainability. They also undertake activities such as community service, participate in colloquiums, and prepare a funding proposal related to urban sustainability. The dual-title coursework follows competencies outlined by the Transformative Research in Urban Sustainability Training program.

Students must satisfy all requirements for the Ph.D. in Pharmaceutical Sciences. Additional requirements for students enrolled in the Pharmaceutical Sciences and Urban Sustainability dual-title program include:

- 4 required T-RUST core courses out of 5 choices (below)
- 12 credit hours of electives from list of elective courses (at least 7 credits must be from a department other than PSC)
- Participate in community service (2x per year)
- Participate in colloquium
- Prepare proposal to an external funding agency
- Participate in internship with a partner organization
- Develop a 2-credit capstone seminar course in collaboration with other students
- Doctoral dissertation includes 1 chapter that addresses an urban sustainability issue
- Produce a collaborative publication with a doctoral research team under the supervision of the doctoral advisor

Core Courses

Code	Title	Credits
ANT 5060	Urban Anthropology	3
BIO 7310	Sustainability of Urban Environmental Systems	2
CE 5410	Energy, Emissions, Environment (E3) Design	3
COM 7170	Health and Risk Communication	3
UP 6470	Environmental Planning	3

Elective Courses

Code	Title	Credits
ANT 5565	Urban Archaeology	
ANT 6570	Archaeological Laboratory Analysis	
BIO 5040	Biometry	
BIO 5180	Field Investigations in Biological Sciences	
BIO 6420	Ecotoxicology and Risk Assessment	
BIO 7011/ PHC 7410	Principles of Toxicology	
BIO 7540	Landscape Ecology	
CE 6270	Sustainability Assessment and Management	
CE/PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	
CE 7280	Applied Environmental Microbiology	
CE 7995	Special Topics in Civil Engineering II ¹	

COM 7160	Crisis Communication
ECO 6200	Advanced Regulation and Regulated Industries
ECO 6520	State and Local Public Finance
ECO 6800	Advanced Urban and Regional Economics
ESG 5000	Geological Site Assessment
ESG 5510	Environmental Fate and Transport of Pollutants
ESG 5610	Special Topics in Environmental Science and Geology
FPH 7420	Principles of Environmental Health
LEX 7231	Environmental Law
UP 5110	Urban Planning Process
UP 5430	Cities and Food
UP 6120	Planning Studies and Methods
UP 6260	Land Use Policy and Planning
UP 6700	Geographic Information Systems

¹ In order to satisfy the elective requirement, the topic area must be relevant to the program. Students should consult with their advisor for details.