

Tumor Biology, MS

In the Master of Science in Tumor Biology (<https://tumorbiology.georgetown.edu/ms/>), students learn basic concepts in cancer biology, including in biochemistry, pharmacology, prevention and methodology specific to cancer research. Students are trained in basic laboratory techniques and will complete a research project. Graduates of the program have a comprehensive understanding of the underlying mechanisms of cancer progression and the existing clinical challenges in treating this disease.

In addition to in-class courses, students complete a Laboratory Research Project that spans both semesters. Students are matched with a cancer researcher at Lombardi Comprehensive Cancer Center based on shared interests and preferences. In the laboratory, students receive hands-on training for planning and conducting experiments to answer key questions in cancer biology. Common techniques learned include methods in cell culture, molecular biology (analysis of DNA, RNA, proteins or metabolites), or in vivo models of cancer.

- Modality: On Campus
- Academic Policies and Procedures: BGE Handbook (https://docs.google.com/document/d/1rkaOm8U_1eVwabvkl_HFvpfSWrMGnrc6Ex41erxP7g/edit?usp=sharing)
- Contact the Program (<https://tumorbiology.georgetown.edu/contact/#m-s-in-tumor-biology>)

This program is offered through Biomedical Graduate Education (BGE) (<https://biomedicalprograms.georgetown.edu/>) at Georgetown University School of Medicine.

Requirements

Students are required to complete 30 credits of coursework, a year-long laboratory placement, and a laboratory research project. Our curricula have the flexibility for students to choose electives to tailor the program to their interests.

Standard Track

Code	Title	Credits
Required Courses		
TBIO 6508	Cellular & Molecular Aspects	4
TBIO 6510	Biochem for Cancer Research	4
TBIO 7050	Cancer Research Techniques	3
TBIO 7060	Cancer Res Techniques	3
TBIO 6536	Cancer Pharmacology	4
Elective Courses ¹		12
BCHB 5140	Intro to Bioinformatics	
BCHB 5190		
BCHB 5350	PROGRAMMED CELL DEATH	
BIOT 5310	DNA Damage, Repair & Hmn Thrpy	
SYSM 5900	Applctn of Biostat to Big Data	
SYSM 5970	Clinical Bioinformatics	
TBIO 6513	Clinical Conf On Breast Cancer	
TBIO 6520	Cancer Prevent/Control/Epidem	
TBIO 6522	Epigenetics:Mech &Env Implctns	

TBIO 6523	Cancer Epigenetics	
TBIO 6525	Cancer Genetics	
TBIO 6532	Prin/Prac of Behavioral Scienc	
TBIO 6543	Clinical Survey of Human Cance	
TBIO 6546	Resources for Cancer Research	
TBIO 6568	Minrty Hlth & Hlth Disparities	
TBIO 6560	Animal Models	
TBIO 6568	Minrty Hlth & Hlth Disparities	
TBIO 6572	Pathologic Basis of Cancer	
TBIO 6581	Top:Molec Epidem of Cancer Ris	
TBIO 6583	Intro to Cancer as a Disease	
TBIO 6530	Systems Biology & Bioinformati	
TBIO 6532	Prin/Prac of Behavioral Scienc	
TBIO 6546	Resources for Cancer Research	
TBIO 6560	Animal Models	
TBIO 6568	Minrty Hlth & Hlth Disparities	
TBIO 6572	Pathologic Basis of Cancer	
TBIO 6581	Top:Molec Epidem of Cancer Ris	
TBIO 6583	Intro to Cancer as a Disease	
TBIO 6584	Intro to Tumor Biology	
TBIO 6585	Transcriptomics: Microarray An	
TBIO 6586	Proteomics: Mass Spectrometry	
TBIO 6587	Systems Biology: Pathway & Net	
Total Credits		30

¹ Standard Track students must complete 12 credits of electives, including 3 credits of coursework in Quantitative Data Analysis & Scientific Experimental Design. The Tumor Biology Department must approve which course(s) will satisfy the 3 credits. Course offerings vary each semester.

Cancer Systems Biology Track

Code	Title	Credits
Required Courses		
TBIO 6508	Cellular & Molecular Aspects	3
TBIO 6510	Biochem for Cancer Research	4
TBIO 7050	Cancer Research Techniques	3
TBIO 7060	Cancer Res Techniques	3
TBIO 6530	Systems Biology & Bioinformati	3
SYSM 5910	Biomedical Informatics	3
SYSM 5940	Translational Bioinformatics	3
Elective Courses		8
BCHB 5140	Intro to Bioinformatics	
BCHB 5190		
BCHB 5350	PROGRAMMED CELL DEATH	
BIOT 5310	DNA Damage, Repair & Hmn Thrpy	
SYSM 5900	Applctn of Biostat to Big Data	
SYSM 5970	Clinical Bioinformatics	
TBIO 6513	Clinical Conf On Breast Cancer	
TBIO 6520	Cancer Prevent/Control/Epidem	
TBIO 6522	Epigenetics:Mech &Env Implctns	
TBIO 6523	Cancer Epigenetics	

TBIO 6525	Cancer Genetics
TBIO 6530	Systems Biology & Bioinformati
TBIO 6532	Prin/Prac of Behavioral Scienc
TBIO 6543	Clinical Survey of Human Cance
TBIO 6546	Resources for Cancer Research
TBIO 6560	Animal Models
TBIO 6568	Minrty Hlth & Hlth Disparities
TBIO 6572	Pathologic Basis of Cancer
TBIO 6581	Top:Molec Epidem of Cancer Ris
TBIO 6583	Intro to Cancer as a Disease
TBIO 6584	Intro to Tumor Biology
TBIO 6585	Transcriptomics: Microarray An
TBIO 6586	Proteomics: Mass Spectrometry
TBIO 6587	Systems Biology: Pathway & Net
Total Credits	
30	

Related Programs

- Tumor Biology, PHD (<http://coursecatalog.georgetown.edu/programs/tumor-biology-phd/>)