

Biotechnology, MS

The Master of Science in Biotechnology program (<https://biotechnology.georgetown.edu/ms/>) integrates science and biotechnology-based business. It can be completed in just two semesters, allowing flexibility for self-discovery and career orientation.

Students take a capstone internship course to gain real-world experience at biotech companies, agencies or other institutions. Highly motivated students may also be eligible for internships at Frederick National Laboratory for Cancer Research or Lawrence Livermore National Laboratory.

- 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://biotechnology.georgetown.edu/contact/>)

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

Requirements

To earn the Master of Science degree in Biotechnology, students must choose one of six tracks to focus their studies and earn 30 credits.

BioBusiness Track

Code	Title	Credits
Required Courses		22
BIOT 7130	Principles of Biochemistry	3
BCHB 5140	Intro to Bioinformatics	
	or BCHB 5150 Intro To Bioinformatics	3
BIOT 5007	Lab Applications of BIOTECH	
	or BIOT 5007 LAB APPLICATIONS OF BIOCHEM	3
BIOT 5009	Intro to Biotech Industry	
BIOT 5100	Entrepreneurial Biotechnology	3
BIOT 5200	Financial Matrix in Biotech	
BIOT 5230	Intellectual Property	3
BIOT 5700	Gene & Cell Therapy Strategies	
BIOT 7950	Biotech Capstone Intrnshp	4
BCHB 5540	Research Ethics & Integrity	
BIOT 6590	Intro Biotechnology Internship	0
Elective Courses		
BIOT 5190	Medical Toxicology	3
BIOT 5520	Marketing Applications:Biotech	
BIOT 5160	Molecular Medicine	3
BIOT 5220	DRUG TARGETS/DRUG DESIGN	
BIOT 5270	Food, Agri. & Env. Biotech.	3
BIOT 5500	Management Strats: Biotech	
BIOT 5510	Commercialization:Biotech Ind	3
BIOT 5550	Biotech, the Fed. Govt and You	

BIOT 5570	Strategic Leadership:Sci &Tech
BIOT 5660	Drug Dev. to Post Approval
BIOT 6430	Regulatory Affairs in Biotech
BIOT 8001	Portfolio & Project Management

Optional Courses

These courses do not count toward the degree requirements, but students may find them beneficial.

BIOT 7000	Scientific & Presn. English
BIOT 7003	Convrns Engl for Int'l Students

Total Credits **30**

BioScience Track

Code	Title	Credits
Required Courses		
BIOT 7130	Principles of Biochemistry	3
BCHB 5140	Intro to Bioinformatics	1
	or BCHB 5150 Intro To Bioinformatics	3
BIOT 5007	Lab Applications of BIOTECH	
	or BIOT 50078	3
BIOT 5009	Intro to Biotech Industry	
BIOT 5100	Entrepreneurial Biotechnology	3
BIOT 5260	CORE METHODS IN BIOTECHNOLOGY	3
BIOT 5430	Intro to GMP, CMC & Reg Policy	1
BIOT 7950	Biotech Capstone Intrnshp	4
Students must also complete these non-credit courses		
BCHB 5540	Research Ethics & Integrity	0
BIOT 6590	Intro Biotechnology Internship	0
Elective Courses		9
BCHB 5350	PROGRAMMED CELL DEATH	3
BIOT 5190	Medical Toxicology	
BIOT 5200	Financial Matrix in Biotech	3
BIOT 5230	Intellectual Property	
BIOT 5310	DNA Damage, Repair & Hmn Thrpy	3
BIOT 5370	Protein Prod. & Bioprocessing	
BIOT 5520	Marketing Applications:Biotech	3
BIOT 6007	Research Applications: Biotech	
	or BIOT 6008 Research Applications:Biotech	3
BCHB 5410	Structural Biology	
BIOT 5160	Molecular Medicine	3
BIOT 5220	DRUG TARGETS/DRUG DESIGN	
BIOT 5250	Immunobiotechnology	3
BIOT 5270	Food, Agri. & Env. Biotech.	
BIOT 5370	Protein Prod. & Bioprocessing	3
BIOT 5500	Management Strats: Biotech	
BIOT 5510	Commercialization:Biotech Ind	3
BIOT 5550	Biotech, the Fed. Govt and You	
BIOT 5570	Strategic Leadership:Sci &Tech	3
BIOT 5660	Drug Dev. to Post Approval	
BIOT 5700	Gene & Cell Therapy Strategies	3
BIOT 6007	Research Applications: Biotech	
	or BIOT 6008 Research Applications:Biotech	3
BIOT 6430	Regulatory Affairs in Biotech	

BIOT 8001	Portfolio & Project Management	
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Optional Courses

These courses do not count toward the degree requirements, but students may find them beneficial.

BIOT 7000	Scientific & Presn. English	
BIOT 7003	Convrs Engl for Int'l Students	

Total Credits **30**

Cell & Gene Therapy Track

Code	Title	Credits
Required Courses		27

BCHB 5140	Intro to Bioinformatics	
or BCHB 51	Intro To Bioinformatics	
BIOT 5007	Lab Applications of BIOTECH	
or BIOT 500	BAB APPLICATIONS OF BIOCHEM	
BIOT 5009	Intro to Biotech Industry	
BIOT 5100	Entrepreneurial Biotechnology	
BIOT 5230	Intellectual Property	
BIOT 5250	Immunobiotechnology	
BIOT 5260	CORE METHODS IN BIOTECHNOLOGY	
BIOT 5310	DNA Damage, Repair & Hmn Thrpy	
BIOT 5700	Gene & Cell Therapy Strategies	
BIOT 6430	Regulatory Affairs in Biotech	
BIOT 7130	Principles of Biochemistry	
BIOT 7950	Biotech Capstone Intrnshp	
BCHB 5540	Research Ethics & Integrity	
BIOT 6590	Intro Biotechnology Internship	

Elective Courses **3**

BCHB 5350	PROGRAMMED CELL DEATH	
BIOT 5190	Medical Toxicology	
BIOT 5200	Financial Matrix in Biotech	
BIOT 5400	Vaccine Development	
BIOT 5520	Marketing Applications:Biotech	
BIOT 5570	Strategic Leadership:Sci &Tech	
BCHB 5790	Gene Silencing & GenomeEditing	
BIOT 8000	Spec.Top: Adv. Biotech Reading	
BCHB 5410	Structural Biology	
BIOT 5160	Molecular Medicine	
BIOT 5220	DRUG TARGETS/DRUG DESIGN	
BIOT 5270	Food, Agri. & Env. Biotech.	
BIOT 5370	Protein Prod. & Bioprocessing	
BIOT 5500	Management Strats: Biotech	
BIOT 5550	Biotech, the Fed. Govt and You	
BIOT 5660	Drug Dev. to Post Approval	
BIOT 8001	Portfolio & Project Management	
BIOT 8000	Spec.Top: Adv. Biotech Reading	

Total Credits **30**

Drug Design & Discovery Track

Code	Title	Credits
Required Courses		
BIOT 7130	Principles of Biochemistry	3

BCHB 5140	Intro to Bioinformatics	1
or BCHB 5150	Intro To Bioinformatics	

BIOT 5007	Lab Applications of BIOTECH	3
or BIOT 5008	LAB APPLICATIONS OF BIOCHEM	

BIOT 5009	Intro to Biotech Industry	3
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BIOT 5100	Entrepreneurial Biotechnology	3
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BIOT 5160	Molecular Medicine	2
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BIOT 5220	DRUG TARGETS/DRUG DESIGN	2
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BIOT 5230	Intellectual Property	2
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BIOT 5310	DNA Damage, Repair & Hmn Thrpy	1
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BIOT 5430	Intro to GMP, CMC & Reg Policy	1
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BIOT 5660	Drug Dev. to Post Approval	1
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BIOT 6430	Regulatory Affairs in Biotech	1
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BIOT 7950	Biotech Capstone Intrnshp	4
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BCHB 5540	Research Ethics & Integrity	0
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BIOT 6590	Intro Biotechnology Internship	0
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Elective Courses **3**

BCHB 5350	PROGRAMMED CELL DEATH	
BIOT 5190	Medical Toxicology	
BIOT 5200	Financial Matrix in Biotech	
BIOT 5260	CORE METHODS IN BIOTECHNOLOGY	
BIOT 5370	Protein Prod. & Bioprocessing	
BIOT 5520	Marketing Applications:Biotech	
BIOT 6007	Research Applications: Biotech	
or BIOT 600	Research Applications:Biotech	
BCHB 5360	Cell Culture Appls: Biotech	
BCHB 5410	Structural Biology	
BCHB 5750	Immunotechniques in Biochem	
BIOT 5250	Immunobiotechnology	
BIOT 5260	CORE METHODS IN BIOTECHNOLOGY	
BIOT 5270	Food, Agri. & Env. Biotech.	
BIOT 5370	Protein Prod. & Bioprocessing	
BIOT 5500	Management Strats: Biotech	
BIOT 5510	Commercialization:Biotech Ind	
BIOT 5550	Biotech, the Fed. Govt and You	
BIOT 5570	Strategic Leadership:Sci &Tech	
BIOT 6007	Research Applications: Biotech	
or BIOT 600	Research Applications:Biotech	
BIOT 6100	Biomed.Tiss.Eng. & 3D Cell Cul	
BIOT 8001	Portfolio & Project Management	

Optional Courses

These courses do not count toward the degree requirements, but students may find them beneficial.

BIOT 7000	Scientific & Presn. English	
BIOT 7003	Convrs Engl for Int'l Students	

Total Credits **30**

Entrepreneurship Track

Code	Title	Credits
Required Courses		
BCHB 5140	Intro to Bioinformatics	1
or BCHB 5150	Intro To Bioinformatics	

BIOT 5009	Intro to Biotech Industry	3
BIOT 5100	Entrepreneurial Biotechnology	3
BIOT 5160	Molecular Medicine	2
BIOT 5200	Financial Matrix in Biotech	1
BIOT 5230	Intellectual Property	2
BIOT 5430	Intro to GMP, CMC & Reg Policy	1
BIOT 5500	Management Strats: Biotech	1
BIOT 5510	Commercialization:Biotech Ind	1
BIOT 5590	New Frontiers of Biotechnology	1
BIOT 5660	Drug Dev. to Post Approval	1
BIOT 6002	Intro: Tools Entrepreneurship	2
BIOT 6430	Regulatory Affairs in Biotech	1
BIOT 7130	Principles of Biochemistry	3
BIOT 7950	Biotech Capstone Intrnshp	4
BIOT 8001	Portfolio & Project Management	1
BCHB 5540	Research Ethics & Integrity	0
BIOT 6590	Intro Biotechnology Internship	0

Elective Courses 2

BIOT 5310	DNA Damage, Repair & Hmn Thrpy
BIOT 5520	Marketing Applications:Biotech
BIOT 5690	Essentials: Med. Toxicology
BIOT 5220	DRUG TARGETS/DRUG DESIGN
BIOT 5270	Food, Agri. & Env. Biotech.
BIOT 5550	Biotech, the Fed. Govt and You
BIOT 5570	Strategic Leadership:Sci &Tech
BIOT 5700	Gene & Cell Therapy Strategies
BIOT 8000	Spec.Top: Adv. Biotech Reading

Optional Courses

These courses do not count toward the degree requirements, but students may find them beneficial.

BIOT 7000	Scientific & Presn. English
BIOT 7003	Convrs Engl for Int'l Students

Total Credits 30

Individualized Track

Code	Title	Credits
Required Courses		
BIOT 7130	Principles of Biochemistry	3
BCHB 5140	Intro to Bioinformatics	1
or BCHB 5150 Intro To Bioinformatics		
BIOT 5007	Lab Applications of BIOTECH	3
or BIOT 5008 LAB APPLICATIONS OF BIOCHEM		
BIOT 5009	Intro to Biotech Industry	3
BIOT 5100	Entrepreneurial Biotechnology	3
BIOT 5430	Intro to GMP, CMC & Reg Policy	1
BIOT 7950	Biotech Capstone Intrnshp	4
BCHB 5540	Research Ethics & Integrity	0
BIOT 6590	Intro Biotechnology Internship	0
Elective Courses		12
BCHB 5350	PROGRAMMED CELL DEATH	
BCHB 5450	Essentials/Prog Cell Death	
BIOT 5190	Medical Toxicology	

BIOT 5200	Financial Matrix in Biotech
BIOT 5230	Intellectual Property
BIOT 5260	CORE METHODS IN BIOTECHNOLOGY
BIOT 5310	DNA Damage, Repair & Hmn Thrpy
BIOT 5370	Protein Prod. & Bioprocessing
BIOT 5520	Marketing Applications:Biotech
BIOT 6007	Research Applications: Biotech
BCHB 5360	Cell Culture Appls: Biotech
BCHB 5220	
BCHB 5410	Structural Biology
BCHB 5460	Principles of Tissue Culture
BIOT 5160	Molecular Medicine
BIOT 5260	CORE METHODS IN BIOTECHNOLOGY
BIOT 5270	Food, Agri. & Env. Biotech.
BIOT 5370	Protein Prod. & Bioprocessing
BIOT 5500	Management Strats: Biotech
BIOT 5510	Commercialization:Biotech Ind
BIOT 5550	Biotech, the Fed. Govt and You
BIOT 5570	Strategic Leadership:Sci &Tech
BIOT 5660	Drug Dev. to Post Approval
BIOT 5700	Gene & Cell Therapy Strategies
BIOT 6007	Research Applications: Biotech
BIOT 6100	Biomed.Tiss.Eng. & 3D Cell Cul
BIOT 6430	Regulatory Affairs in Biotech
BIOT 8001	Portfolio & Project Management

Optional Courses

These courses do not count toward the degree requirements, but students may find them beneficial.

BIOT 7000	Scientific & Presn. English
BIOT 7003	Convrs Engl for Int'l Students

Total Credits 30

Related Programs

- Biotechnology BioBusiness, Graduate Certificate (<http://coursecatalog.georgetown.edu/programs/biotechnology-biobusiness-graduate-certificate/>)