Cecil College and Jefferson College of Health Professions at Thomas Jefferson University

Bachelor of Science

Two-year Option (2+2)

Fall Semester (Year 1)		
Code	**Course Name**	**Credits**
BT 303	Molecular Preparatory Techniques	3
BT 310	Fundamental Molecular Techniques	4
BT 405	Applied Microbial Biotechnology	3
LS 301	Molecular Biology	3
LS 304	Biochemistry	3
	Total Semester Credits	**16**

Spring Semester (Year 1)		
Code	**Course Name**	**Credits**
BT 320	Cell and Tissue Culture Techniques	4
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
LS 440	Current Research in the Biosciences	2
TBD	Program-Approved Elective (Courses listed below)	1-3
Total Semester Credits		**14-16**

Summer Semester (Optional)

- Biotechnology Summer Research
- Biotechnology Skill Building Discussion Group

Fall Semester (Year 2)		
Code	**Course Name**	**Credits**
BT 305	Survey of Biotechnology Applications	3
BT 412	Biotechnology Practicum I	3
BT 422	Biotechnology Practicum II	3
TBD	Program-Approved Elective (Courses listed below)	2-3
LS 403	Research Design	2
LS 331	Immunology	3
LS 404*	Experimental Research I	1
Total Semester Credits		17-18

Spring Semester (Year 2)		
Code	**Course Name**	**Credits**
BT 406	Introduction to Bioinformatics	2
BT 432	Biotechnology Practicum III	3
BT 442	Biotechnology Practicum IV	3
BT 403	Human Genetics	3
BT 325	Product Development & Management	3
LS 430	Laboratory Standards and Practices	3
LS 405*	Experimental Research II	1
LS 416	Comprehensive Examination	0
Total Semester Credits		18

TOTAL:

Credits Required for Admission	**55**
Undergraduate Credits-Year One	**30-32**
Undergraduate Credits-Year Two	**35-36**
Total Credits to Degree (minimum)	**120-123**

* To meet the research requirements, students will engage in a two-semester wet bench research project with a selected PI (LS 404 and LS 405). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 404 and LS 405 are not a substitute for clinical practica courses nor may run concurrently with practica courses. Alternatively, a 2 to 3 credit Program-Approved Elective may be selected to replace LS 404 and LS 405.

Suggested Pre-Approved Elective Courses (See Program Director for Confirmation)

Code	Course Name	Credits	Semester
GC 525	Information System Management	3	Fall, Spring
GC 526	Lab Animal Science	2	Spring
GC 559	Introduction to R Programming	3	Fall
GC 645	Genomics & Bioinformatics	3	Spring
GC 654	Pharmacoepidemiology	2	Spring
GC 660	Statistical Methods	3	Fall, Spring
MI 522	Vaccinology & Immunotherapeutics	2	Fall
MI 530	Microbial Pathogenesis of Disease	2	Fall
MI 540	Antimicrobial Agents	3	Summer
MI 580	Principles of Epidemiology	3	Fall, Spring
MI 590	Introduction to Clinical Virology	2	Spring
PR 522	General Pharmacology	3	Spring
PR 525	Principles of Clinical Pharmacology (PR 522 prereq)	3	Summer
PR 526	Pharmacogenomics	2	Spring

PR 630	General Toxicology	3	Summer
CB 570	Pathologic Aspects of Disease	3	Spring
CB 635	Gene Environ. Interactions Birth Defects & Dis.	3	Spring
GE 651	Pathobiology of Cancer	2	Spring
HCA 300	Healthcare Services Deliv. & Organ.	3	Spring

For Biotechnology Master's Degree Students (See Program Director for Confirmation)

Code	Course Name	Credits	Semester
LS 640	Methods in Bioscience Education	3	Fall
LS 644	Laboratory Education & Instruction (Laboratory Teaching Assistant)	3	Fall
LS 698	Special Topics in the Laboratory Sciences (Laboratory Teaching Assistant)	3	Spring

For Biotechnology Master's AND Bachelor's Degree Students (See Program Director for Confirmation)

Code	Course Name	Credits	Semester
LS 499	Independent Study (Biotechnology Research)	1-3	Fall, Spring, Summer
LS 699	Independent Study (Biotechnology Research)	1-3	Fall, Spring, Summer