



# 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		

55
30-32
35-36
120-123

<sup>\*</sup> 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)

Course Name	Credits	Semester
Information System Management	3	Fall, Spring
Lab Animal Science	2	Spring
Introduction to R Programming	3	Fall
Genomics & Bioinformatics	3	Spring
Pharmacoepidemiology	2	Spring
Statistical Methods	3	Fall, Spring
Vaccinology & Immunotherapeutics	2	Fall
Microbial Pathogenesis of Disease	2	Fall
Antimicrobial Agents	3	Summer
Principles of Epidemiology	3	Fall, Spring
Introduction to Clinical Virology	2	Spring
General Pharmacology	3	Spring
Principles of Clinical Pharmacology (PR 522 prereq)	3	Summer
Pharmacogenomics	2	Spring
	Information System Management  Lab Animal Science  Introduction to R Programming  Genomics & Bioinformatics  Pharmacoepidemiology  Statistical Methods  Vaccinology & Immunotherapeutics  Microbial Pathogenesis of Disease  Antimicrobial Agents  Principles of Epidemiology  Introduction to Clinical Virology  General Pharmacology  Principles of Clinical Pharmacology (PR 522 prereq)	Information System Management  Lab Animal Science  Introduction to R Programming  Genomics & Bioinformatics  Pharmacoepidemiology  Statistical Methods  Vaccinology & Immunotherapeutics  Microbial Pathogenesis of Disease  Antimicrobial Agents  Principles of Epidemiology  Introduction to Clinical Virology  General Pharmacology  Principles of Clinical Pharmacology (PR 522 prereq)  3

PR 630	GeneralToxicology	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