

## Biotechnology - Prerequisites and Curriculum for undergraduate programs

You must earn a grade of 'C' or better in each prerequisite course

<b>Prerequisite Courses for Baccalaureate and Entry-Level BS/MS Programs</b>			
<b>Course Distribution</b>	<b>2+2 BS Program</b>	<b>3+1 BS Program</b>	<b>3+2 Entry-Level BS/MS Program</b>
Biological or Chemical Sciences <sup>1</sup>	16	16	20
Organic Chemistry	4	4	4
College Algebra, Trigonometry, Precalculus, Calculus or Statistics	3	3	3*
English	6	6	6
Electives <sup>2</sup>	26	41	49
<b>Total</b>	<b>55</b>	<b>70</b>	<b>82</b>

<sup>1</sup>Suggested biological or chemical sciences courses include but are not limited to General Biology, General Chemistry and Anatomy & Physiology. <sup>2</sup>A course in Statistics, Physics, Bioinformatics or similar coursework is recommended. \*Applicants to the Entry-Level BS/MS or the Masters programs should take Statistics.

NOTE: Graduates of associate degree MLT, CLT, BT or other similar programs may transfer technician coursework credits to satisfy the biological/chemical sciences and elective prerequisites.

### "2+2" Baccalaureate Degree Program in Biotechnology

(Full-time, 2-year option for students entering with 55 specific prerequisite credits)

*Junior Year*

#### FALL SEMESTER

	<i>Semester Credits</i>
LS 301 Molecular Biology	3
LS 303 Fundamental Clinical & Experimental Techniques	3
BT 303 Molecular Preparatory Techniques	1
BT 310 Basic Molecular Techniques	4
BT 405 Microbial Genetics	3
CH 304 Biochemistry	3
Total for semester	17

#### SPRING SEMESTER

LS 440 Current Research in the Biosciences	2
BT 320 Cell and Tissue Culture	4
BT 403 Human Genetics	3
BT 410 Molecular Diagnostic Techniques	4
BT 411 Protein Purification and Characterization	3
Total for semester	16

*Senior Year*

FALL SEMESTER		<i>Semester Credits</i>
LS 311	Functional Histology	2
BT 412	Biotechnology Practicum I	4
BT 422	Biotechnology Practicum II	4
MT 331	Immunology	3
HCA 300	Healthcare Delivery in America	3

Total for semester 

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SPRING SEMESTER		
LS 416	Comprehensive Examination	1
LS 413	Pathology	2
LS 430	Laboratory Standards and Practices	3
BT 401	Systems Biology	2
BT 432	Biotechnology Practicum III	4
BT 442	Biotechnology Practicum IV	4

Total for semester 

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**Credit Summary**

Credits Required for Admission	55
Credits for Junior Year	33
Credits for Senior Year	32
Total Credits for BS (Biotechnology/ Molecular Sciences, “2+2” Option)	<hr/> 120

**“3+1”Baccalaureate Program**

(Full-time, 1-year option for students entering with 70 specific prerequisite credits)

FALL SEMESTER		<i>Semester Credits</i>
LS 301	Molecular Biology	3
LS 303	Fundamental Clinical and Experimental Techniques	3
BT 303	Molecular Preparatory Techniques	1
BT 310	Basic Molecular Techniques	4
BT 405	Microbial Genetics	3
CH 304	Biochemistry	3
MT 331	Immunology	3

Total for semester 

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SPRING SEMESTER		
LS 413	Pathology	2
LS 440	Current Research in the Biosciences	2
BT 320	Cell and Tissue Culture	4
BT 401	Systems Biology	2

BT 403	Human Genetics	3
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
Total for semester		20

**SUMMER SESSIONS I & II**

LS 416	Comprehensive Examination	1
LS 430	Laboratory Standards and Practices	3
BT 412	Biotechnology Practicum I	4
BT 422	Biotechnology Practicum II	4
BT 432	Biotechnology Practicum III	4
BT 442	Biotechnology Practicum IV	4
Total for semester		20

**Credit Summary for 3+1 Baccalaureate Degree Option**

Credits Required for Admission	70
Credits for Senior Year	60
Total Credits for BS (Biotechnology/ Molecular Sciences, "3+1" Option)	130

**Entry-Level BSL/MSLS Program in Biotechnology/Applied Molecular Technologies**

(full-time, 2 year baccalaureate and entry-level master's degree program for students entering with 82 specific prerequisite credits)

FALL SEMESTER	<i>Semester Credits</i>	
LS 301	Molecular Biology	3
LS 303	Fundamental Clinical and Experimental Techniques	3
CH 304	Biochemistry	3
BT 303	Molecular Preparatory Techniques	1
BT 310	Basic Molecular Techniques	4
BT 405	Microbial Genetics	3
MT 331	Immunology	3
Total for semester		20

**SPRING SEMESTER**

BT 411	Protein Purification and Characterization	3
BT 320	Cell and Tissue Culture	4
LS 440	Current Research in the Biosciences	3
BT 403	Human Genetics	3
BT 410	Molecular Diagnostic Techniques	4
BT 401	Systems Biology	2
Total for semester		19

Students who achieve a grade-point average of 3.0 or higher at the completion of two semesters of undergraduate coursework are admitted to the graduate phase of the program.

*Graduate Phase*

FALL SEMESTER

	Concentration Electives	6
LS 603	Research Design	3
LS 640	Methods in Bioscience Education	3
LS 801	Research Project I	1
LS 812	Practicum I	2
LS 813	Practicum II	2
	Total for semester	<hr/> 17

SPRING SEMESTER

LS 613	Pathology	2
LS 610	Regulatory + Fiscal Issues in Laboratory Management	3
LS 802	Research Project II	2
LS 814	Practicum III	2
LS 815	Practicum IV	2
LS 816	Comprehensive Examination	1
	Concentration Elective	3
	Total for semester	<hr/> 15

**Credit Summary for 3+1 Baccalaureate Degree Option**

	Credits Required for Admission	82
	Undergraduate Phase Credits	39
	Graduate Phase Credits	<hr/> 32
	<b>Total Credits for BS/MS in Bioscience Technologies - Biotechnology/Molecular Sciences Option</b>	<b>153</b>