#### Bachelor of Science in Biology

(recommended plan for students with strong science backgrounds)

- NEW FALL 2014 -

	First Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed					
BIO 200/201 Introductory Biology I/Lab	4	Х	NS	BIO 202/203 Introductory Biology II/Lab	4	Х	NS					
CHM 261/266 General Chemistry I/Lab	4	х	NS	CHM 262/267 General Chemistry II/Lab	4	х	NS					
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C					
MTH 147, PSY 217^, SOC 354^ <b>OR</b> MTH 181	3 or 4	х	M/QL	MTH 347, PSY 317^ <b>OR</b> MTH 182	3 or 4	х	M/QL					
ASC 101 Introduction to University Life	1		INTRO									
Semester Total	15 or 16			Semester Total	14 or 15	·						

	Second Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed					
300-level Organismal Course (BIO 300/301; 302/303; 304/305)	4	х		300-level Cell/Molecular Course (BIO 306; 308/309; 310/311)	3 or 4	Х						
CHM 331/336 Organic Chemistry I/Lab	5	х		General Elective*	3							
Arts & Humanities Elective (outside the US/ALAAME)	3		A&H	Social Science Elective (outside the US/ALAAME)	3		SS					
Social Science Elective	3		SS	Arts & Humanities Elective	3		A&H					
				General Elective*	3							
Semester Total	15			Semester Total	15 or 16							

Third Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
300-level Cell/Molecular Course (BIO 306; 308/309; 310/311)	3 or 4	х		300-level Organismal Course (BIO 300/301; 302/303; 304/305)	4	Х					
Biology Elective**	4	х		Biology Elective**	4	Х					
PHY 231 College Physics I - Biomedical Applications	4	х	NS	BIO 390 Writing in Biology (Recommended)	2		WAC				
US Diversity Elective	3		DIV	PHY 232 College Physics II - Biomedical Applications	4	Х	NS				
Semester Total	14 or 15			Semester Total	14						

			Fourth	Year						
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
Biology Elective**	4	Х		BIO 499 Exit Evaluation	0	Х				
African American Experience Elective	3		DIV	BIO 495 Seminar	1	х	CAP; SPAC			
General Elective*	3			Writing Across the Curriculum Elective	3		WAC			
General Elective*	3			Biology Elective**	4	Х				
General Elective*	3			Biology Elective**	4	х				
				General Elective*	3					
Apply for Spring graduation prior to Sep 9th										
Semester Total	16			Semester Total	15					
Degree Total (as listed in above sample): 118 - 122 (120 hours minimum required to earn degree)										

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

#### College/ Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

\*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have aminimum of 120 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other elective choices made, students may not need as many electives as indicated above, or may need additional electives.

#### University Notes:

Gen Ed Key:

INTRO = Introduction to University Life (one course)

W/C = Writing/Composition (two courses; C or better required)

M/QL = Mathematics/Quantitative Literacy (two courses)

NS = Natural Sciences (two courses, one of which must have a lab)

 $SS = Social Sciences (two courses, one of which must be focused outside the <math>US^{**}$ )

A&H = Arts & Humanities (two courses, one must be focused outside the  $US^{**}$ )

DIV = Social Diversity (two courses; one US Diversity and one African American Experience)

WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required) CAP = Capstone

\*\* of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

<sup>\*\*</sup> Refer to the Undergraduate Catalog, Grad Express Degree Audit, or the faculty advisor for information regarding which courses are eligible to be used as biology electives.

 $<sup>^{\</sup>wedge}$ Only one QL course can be applied to the M/QL requirement. The other course must be an MTH course.

#### Bachelor of Science in Biology

(recommended plan for students not confident/untested in their scientific abilities)

- NEW FALL 2014 -

First Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
BIO 200/201 Introductory Biology I/Lab	4	Х	NS	BIO 202/203 Introductory Biology II/Lab	4	Х	NS				
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C				
MTH 147, PSY 217^, SOC 354^ <b>OR</b> MTH 181	3 or 4	Х	M/QL	MTH 347, PSY 317^ <b>OR</b> MTH 182	3 or 4	Х	M/QL				
ASC 101 Introduction to University Life	1		INTRO	Arts & Humanities Elective	3		A&H				
Social Science Elective	3		SS	Social Science Elective (outside the US/ALAAME)	3		SS				
Semester Total	14 or 15			Semester Total	16 or 17						

Second Year											
Fall Semester Credits Major Gen Ed Spring Semester Credits Major											
300-level Organismal Course (вю 300/301; 302/303; 304/305)	4	Х		300-level Cell/Molecular Course (BIO 306; 308/309; 310/311)	3 or 4	Х					
CHM 261/266 General Chemistry I/Lab	4	х	NS	General Elective*	3						
US Diversity Elective	3		DIV	CHM 262/267 General Chemistry II/Lab	4	х	NS				
Arts & Humanities Elective (outside the US/ALAAME)	3		A&H	African American Experience Elective	3		DIV				
Semester Total	14			Semester Total	13 or 14						

Third Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
300-level Cell/Molecular Course (BIO 306; 308/309; 310/311)	3 or 4	Х		300-level Organismal Course (BIO 300/301; 302/303; 304/305)	4	Х					
CHM 331/336 Organic Chemistry I/Lab	5	х		Biology Elective**	4	Х					
Writing Across the Curriculum Elective	3		WAC	BIO 390 Writing in Biology (Recommended)	2		WAC				
General Elective*	3			General Elective*	3						
				General Elective*	3						
Semester Total	14 or 15			Semester Total	16						

			Fourth	Year						
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
Biology Elective**	4	Х		BIO 499 Exit Evaluation	0	Х				
PHY 231 College Physics I	4	х	NS	Biology Elective**	4	х				
General Elective*	3			Biology Elective**	4	Х				
Biology Elective**	4	х		PHY 232 College Physics II	4	х	NS			
				General Elective*	3					
				BIO 495 Seminar	1	Х	CAP; SPAC			
Apply for Spring graduation prior to Sep 9th										
Semester Total	15			Semester Total	16					
Degree Total (as listed in above sample): 118 - 122 (120 hours minimum required to earn degree)										

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

#### College/ Program Notes

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

\*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have aminimum of 120 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other elective choices made, students may not need as many electives as indicated above, or may need additional electives.

- \*\* Refer to the Undergraduate Catalog, Grad Express Degree Audit, or the faculty advisor for information regarding which courses are eligible to be used as biology electives.
- ^Only one QL course can be applied to the M/QL requirement. The other course must be an MTH course.

#### University Notes:

SS = Social Sciences (two courses, one of which must be focused outside the US\*\*)

INTRO = Introduction to University Life (one course)

A&H = Arts & Humanities (two courses, one must be focused outside the US\*\*)

M/C = Writing/Composition (two courses; C or better required)

M/QL = Mathematics/Quantitative Literacy (two courses)

NS = Natural Sciences (two courses, one of which must have a lab)

CAP = Capstone

\*\* of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

Bachelor of Science in Biology CSUteach (minor in Education)

				First	Year
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester Credits Major Minor Gen B
ASC 101: Intro to University Life	1			Intro	EUT 201: Step 1: Inquiry Approaches to Teaching 1 x
ENG 101: College Writing I	3			W/C	ENG 102: College Writing II 3 W/C
BIO 200/201: Introductory Biology I + Lab	4	Х	х	NS	BIO 202/203: Introductory Biology II + L; 4 x x NS
PSY 221: Adolescent Psychology	3		х	SS	CHM 261/266: General Chemistry I + La 4 x x NS
MTH 181: Calculus I	4	Х	х	M/QL	MTH 147: Statistical Concepts & App 3 x x M/Ql
					PHY 201: Astronomy: Stars & Galaxies 3 x x NS
Semester Total	15				Semester Total 18

				Secon	d Year				
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed
EUT 217: Step 2: Inquiry-Based Lesson Design in Science	1		х		EDC 300: Div in Edu Settings	3		х	DIV
BIO 300/301: Plant Biology + Lab	4	х			BIO 304/305: Pop Biology & Evolution +	4	Х	х	
CHM 262/267: General Chemistry II + La	4	Х	х	NS	CHM 331/336: Organic Chemistry I + La	5	Х		
EVS 206/207: Intro to Env. Science + Lat	4	х	х	NS	BIO 308/309: Cell Biology + Lab	4	Х		
Arts & Humanities Elective (outside US**)	3			A&H					
Semester Total	16				Semester Total	16			

	Third Year													
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed					
EUT 302: Knowing & Learning	3		х		EUT 305: Classroom Interactions	3		х						
BIO 302/304: Animal Biology + Lab	4	х			BIO 306: Biochemistry	3	х							
PHY 221: College Physics I	5	х	х	NS	PHY 222: College Physics II	5	Х	х	NS					
GEO 100/101: Intro to Geology + Lab	4	х	х		Social Science Elective (outside US**)	3			SS					
					African American Experience Elective	3			DIV					
Semester Total	16				Semester Total	17								

				Fourt	h Year							
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed			
EUT 317: Project Based Instruction in Sc	i 3		х		EST 499: CSUteach STEM Apprentice Tea	6		Х				
EST 399: CSUteach STEM Apprentice Teach	1		х		EUT 210: Perspectives on Science & M	3		Х	A&H/WAC			
SCI 311: Research Methods	3		х	WAC	CHM 255: Principles of Environmental Cher	3	Х	Х				
BIO 310/311: Genetics + Recitation	4	х			BIO 495: Seminar	1	х		CAP/WAC			
PHY 470: Environmental Physics	3	Х	х		BIO 499: Exit Evaluation	0	Х					
EDL 305: Content Area Literacy	3		х		BIO 3xx/4xx: Elective	3	Χ					
Apply for Spring graduation prior to Se	ep 9th											
Semester Total	17				Semester Total	16						
	Degree Total: 131											

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

#### College/ Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

\*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 120 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon other elective choices made (3 credit hour vs. 4 credit hour courses), students may not need as many general electives as indicated above, or may need additional electives.

## University Notes:

INTRO = Introduction to University Life (one course)
W/C = Writing/Composition (two courses; C or better required)
M/QL = Mathematics/Quantitative Literacy (two courses)
NS = Natural Sciences (two courses, one of which must have a lab)

SS = Social Sciences (two courses, one of which must be focused outside the US\*\*)

A&H = Arts & Humanities (two courses, one must be focused outside the US\*\*)

DIV = Social Diversity (two courses; one US Diversity and one African American Exp.

WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the ma

CAP = Capstone

\*\* of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

## Cleveland State University

#### **College of Science and Health Professions**

Bachelor of Science in Biology - Medical Technology

(4+1 Option)

- NEW FALL 2014 -

First Year										
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
BIO 200/201 Introductory Biology I/Lab	4	Х	NS	BIO 310/311 Genetics/Recitation	4	Х				
CHM 261/266 General Chemistry I/Lab	4	Х	NS	CHM 262/267 General Chemistry II/Lab	4	Х	NS			
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C			
MTH 147, PSY 217^, <b>OR</b> SOC 354^	3	Х	M/QL	MTH 347 <b>OR</b> PSY 317^	3	Х	M/QL			
ASC 101 Introduction to University Life	1		INTRO							
Semester Total	15			Semester Total	14					

Second Year										
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
BIO 266/267 Anatomy & Physiology I/Lab	4	Х	NS	BIO 268/269 Anatomy & Physiology II/Lab	4	Х	NS			
CHM 331/336 Organic Chemistry I/Lab	5	Х		BIO 306 Biochemistry & Molecular Biology	3	Х				
BIO 400 Orientation for Med Tech Students	1	Х		Arts & Humanities Elective	3		A&H			
Social Science Elective	3		SS	US Diversity Elective	3		DIV			
General Elective*	3									
Semester Total	16			Semester Total	13					

Third Year										
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
BIO 308/309 Cell Biology/Lab	4	Х		Medical Technology Elective**	4	Х				
General Elective*	3			BIO 414/415 Parasitology/Lab	4	Х				
Arts & Humanities Elective (outside the US/ALAAME)	3		A&H	BIO 390 Writing in Biology (Recommended)	2		WAC			
African American Experience Elective	3		DIV	Social Science Elective (outside the US/ALAAME)	3		SS			
				General Elective*	3					
Semester Total	13			Semester Total	16					

Fourth Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
BIO 412/413 Elements of Immunology/Lab	4	Х		BIO 499 Exit Evaluation	0	Х					
BIO 495 Seminar	1	Х	CAP; SPAC	General Elective*	3						
Medical Technology Elective**	4	Х		Medical Technology Elective**	4	Х					
BIO 416/417 Microbiology/Lab	5	Х		Writing Across the Curriculum Elective	3		WAC				
General Elective*	3			General Elective*	3						
				General Elective*	3						
Apply for Spring graduation prior to Sep 9th											
Semester Total	17			Semester Total	16						
Degree Total (as listed in above sample): 120 (120 hours minimum required to earn degree)											

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

#### College/ Program Notes

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

\*General Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have aminimum of 120 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other choices made, students may not need as many electives as indicated above, or may need additional electives.

^Only one QL course can be applied to the M/QL requirement. The other course must be an MTH course

Gen Ed Key: SS = Social Sciences (two courses, one of which must be focused outside the US\*\*)

INTRO = Introduction to University Life (one course) A&H = Arts & Humanities (two courses, one must be focused outside the US\*\*)

W/C = Writing/Composition (two courses; C or better required)

DIV = Social Diversity (two courses; one US Diversity and one African American Experience)

M/QL = Mathematics/Quantitative Literacy (two courses) WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required)

NS = Natural Sciences (two courses, one of which must have a lab) CAP = Capstone

\*\* of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

 $<sup>{\</sup>bf **}{\bf Medical\ Technology\ Electives\ must\ be\ chosen\ from\ a\ list\ of\ approved\ electives\ from\ BIO\ and\ CHM\ and\ CHM\ approved\ electives\ from\ BIO\ and\ electives\ from\ BIO\ approved\ electives\ from\ BIO\ approved\ electives\ from\ BIO\ approved\ electives\ from\ ele$ 

### Bachelor of Science in Biology - Medical Technology

(3+1 Option\*\*)

- NEW FALL 2014 -

First Year										
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
BIO 200/201 Introductory Biology I/Lab	4	Х	NS	CHM 262/267 General Chemistry II/Lab	4	Х	NS			
CHM 261/266 General Chemistry I/Lab	4	Х	NS	ENG 102 English II	3		W/C			
ENG 101 English I	3		W/C	MTH 347 <b>OR</b> PSY 317^	3	Х	M/QL			
MTH 147, PSY 217^, <b>OR</b> SOC 354^	3	Х	M/QL	Social Science Elective	3		SS			
ASC 101 Introduction to University Life	1		INTRO	General Elective*	3					
Semester Total	15			Semester Total	16					

Second Year										
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
BIO 266/267 Anatomy & Physiology I/Lab	4	Х	NS	BIO 268/269 Anatomy & Physiology II/Lab	4	Х	NS			
CHM 331/336 Organic Chemistry I/Lab	5	Х		BIO 306 Biochemistry & Molecular Biology	3	Х				
Arts & Humanities Elective (outside the US/ALAAME)	3		A&H	Arts & Humanities Elective	3		A&H			
BIO 308/309 Cell Biology/Lab	4	х		Social Science Elective (outside the US/ALAAME)	3		SS			
Semester Total	16			Semester Total	13					

Third Year										
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed			
BIO 412/413 Elements of Immunology/Lab	4	Х		BIO 310/311 Genetics & Recitation	4	Х				
BIO 416/417 Microbiology/Lab	5	Х		BIO 414/415 Parasitology/Lab	4	Х				
BIO 400 Orientation for Med Tech Students	1	Х		BIO 390 Writing in Biology (Recommended)	2		WAC			
US Diversity Elective	3		DIV	BIO 495 Seminar	1	Х	CAP; SPAC			
Writing Across the Curriculum Elective	3		WAC	BIO 499 Exit Evaluation	0	Х				
				African American Experience Elective	3		DIV			
Apply to school of medical technology										
Semester Total	16			Semester Total	14					

Fourth Year = Clincal Year - Taken at school of medical technology**									
Fall Semester Credits Major Gen Ed Spring Semester Credits Major Gen Ed									
Apply for Spring graduation prior to Sep 9th									
Degree Total (as listed in above sample): 90 + 32 from Clinical Year = 122 (120 hours minimum required to earn degree)									

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

#### College/ Program Notes

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

\*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have aminimum of 120 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other choices made, students may not need as many electives as indicated above, or may need additional electives.

\*\*3 years of study at Cleveland State is followed by 1 year of clinical laboratory training in an affiliated school of medical technology. Students do not enroll at Cleveland State during their 4th year and instead enroll at the school of medical technology (note – students are not eligible for financial aid from Cleveland State during this clinical year). After completion of the 4th year, 32 credit hours are transferred back to Cleveland State and are counted toward the degree. The letter grades earned during the internship appear on the student's records, but are not included in the computation of the grade-point average.

^Only one QL course can be applied to the M/QL requirement. The other course must be an MTH course.

#### University Notes:

Gen Ed Key:

INTRO = Introduction to University Life (one course)

W/C = Writing/Composition (two courses; C or better required)

M/QL = Mathematics/Quantitative Literacy (two courses)

NS = Natural Sciences (two courses, one of which must have a lab)

SS = Social Sciences (two courses, one of which must be focused outside the US\*\*)

A&H = Arts & Humanities (two courses, one must be focused outside the US\*\*)

DIV = Social Diversity (two courses; one US Diversity and one African American Experience)

WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required CAP = Capstone

\*\* of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME