

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF ARTS
BIOLOGY**

GENERAL EDUCATION CORE REQUIREMENTS

Competencies			
<input type="checkbox"/>	Basic College Math		
<input type="checkbox"/>	Reading Comprehension		
<input type="checkbox"/>	Computer Literacy		
ENG	101	Composition I	3 _____
ENG	102	Composition II	3 _____
SPC	101	(Public Speaking)	3 _____
SMS	_____	(Health)	3 _____
SMS	_____	(Activity)	.5 _____
SMS	_____	(Activity)	.5 _____
Distribution Sequences (20 credits)			
*	CHE	130 General Chemistry I	4 _____
*	CHE	212 Organic Chemistry I	4 _____
	HIS	101 World History I	3 _____
	HIS	102 World History II	3 _____
	_____	(Literature I)	3 _____
	_____	(Literature II)	3 _____
Distribution Electives (15 credits)			
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.			
Humanities (Division I)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Science/Mathematics (Division II)			
*	MAT	110 Precalculus	
		OR	
*	MAT	220 Calculus I	3-4 _____
*	MAT	247 Statistics I	3 _____
_____	_____	_____	_____
Social Sciences (Division III)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)			
QUANTITATIVE (Q)	_____	DIVERSITY (V)	_____
		WRITING (W)	_____

COURSES IN MAJOR (37-40 credits total)

Freshman Year			
BIO	131	Introduction to Organisms	4 _____
BIO	132	Introduction to Cells	4 _____
Sophomore Year			
BIO	208	Environmental Problems	3 _____
BIO	212	Cell Biology	4 _____
BIO	220	Evolutionary Morphology	3 _____
Junior/Senior Year			
†	BIO	_____ Plant Biology or Animal Biology elective	3-4 _____
	BIO	_____ Cell/Molecular Biology elective	4 _____
†	BIO	_____ Structure/Function or Ecology/Evolution elective	3-4 _____
+	BIO	402 Genetics	4 _____
+	BIO	415N Biology Seminar	2 _____
Major Elective			
+/†	BIO	_____ Biology Elective	3-4 _____

SUPPORT COURSES (8 credits total)

CHE	213	Organic Chemistry II	4 _____
CHE	231	Quantitative General Chemistry	4 _____

‡ FREE ELECTIVES/MINOR (11 credits minimum)

May be necessary to take additional credits to attain the minimum 120 credits required for graduation.

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

FOREIGN LANGUAGE (0-12 credits total)

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- * These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.
- Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.
- + Electives within the major are to be chosen from 300 to 400 level courses, exclusive of BIO 302T, 304, 324, and 328. A maximum 4 credits from BIO 407, 408N, 416, 418, 420, or 422 may be used to fulfill one BIO Elective; additional credits will count as Free Electives. Secondary Education minors must select BIO 320, and one course in Geological Sciences.
- ‡ B.A. Biology majors are strongly urged to elect a Computer Science course and one year of Physics.
- † At least two of the following must have a lab: the Plant or Animal elective, the Structure/Function elective or Ecology/Evolution elective, the BIO elective.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 120

Effective: 9/09

Salem State College

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF SCIENCE
BIOLOGY**

GENERAL EDUCATION CORE REQUIREMENTS

COURSES IN MAJOR (54-55 credits total)

Competencies			
<input type="checkbox"/>	Basic College Math		
<input type="checkbox"/>	Reading Comprehension		
<input type="checkbox"/>	Computer Literacy		
ENG	101	Composition I	3 _____
ENG	102	Composition II	3 _____
SPC	101	(Public Speaking)	3 _____
SMS	_____	(Activity)	.5 _____
SMS	_____	(Activity)	.5 _____
Distribution Sequences (20 credits)			
*	CHE	130	General Chemistry I 4 _____
*	CHE	212	Organic Chemistry I 4 _____
	HIS	101	World History I 3 _____
	HIS	102	World History II 3 _____
	_____	_____	(Literature I) 3 _____
	_____	_____	(Literature II) 3 _____
Distribution Electives (15 credits)			
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.			
Humanities (Division I)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Science/Mathematics (Division II)			
*	MAT	110	Precalculus _____
		OR	
*	MAT	220	Calculus I 3-4 _____
*	MAT	247	Statistics I 3 _____
_____	_____	_____	_____
Social Sciences (Division III)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)			
QUANTITATIVE (Q)	_____	DIVERSITY (V)	_____
		WRITING (W)	_____

Freshman Year			
BIO	131	Introduction to Organisms	4 _____
BIO	132	Introduction to Cells	4 _____
Sophomore Year			
BIO	208	Environmental Problems	3 _____
BIO	212	Cell Biology	4 _____
BIO	220	Evolutionary Morphology	3 _____
Junior/Senior Year			
BIO	402	Genetics	4 _____
BIO	406	Microbiology	4 _____
		OR	
BIO	409	Biological Chemistry	4 _____
BIO	415N	Biological Seminar	2 _____
†	BIO	_____	Plant Biology Elective 4 _____
†	BIO	_____	Animal Biology Elective 3-4 _____
†	BIO	_____	Structure/Function Elective 3-4 _____
†	BIO	_____	Ecology/Evolution Elective 3-4 _____
Major Electives (11 credits)			
+	BIO	_____	Elective 4 _____
+	BIO	_____	Elective 4 _____
+	BIO	_____	Elective 3 _____

SUPPORT COURSES (16 credits total)

‡ 2 Semester sequence in Physics (8 credits)

_____	_____	_____	_____
CHE	213	Organic Chemistry II	4 _____
CHE	231	Quantitative General Chemistry	4 _____

FREE ELECTIVES (3 credits minimum)

May be necessary to take additional credits to attain the minimum 120 credits required for graduation.

_____	_____	_____	_____
_____	_____	_____	_____

- * These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.
- Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.
- + Electives within the major are to be chosen from 300 to 400 level courses, exclusive of BIO 302T, 304, 324 and 328. A maximum 4 credits from BIO 407, 408N, 416, 418, 420 or 422 may be used to fulfill one BIO Elective; additional credits will count as Free Electives. Secondary Education minors must select BIO 320, and one course in Geological Sciences.
- † Three of the four group electives MUST have a lab.
- ‡ The sequence can be chosen from PHS 211A and 212A, or PHS 221 and 222.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 120

Effective: 9/09

Salem State College

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF SCIENCE
BIOLOGY
AQUACULTURE CONCENTRATION**

GENERAL EDUCATION CORE REQUIREMENTS

Competencies				
<input type="checkbox"/>	Basic College Math			
<input type="checkbox"/>	Reading Comprehension			
<input type="checkbox"/>	Computer Literacy			
ENG	101	Composition I	3	_____
ENG	102	Composition II	3	_____
SPC	101	(Public Speaking)	3	_____
SMS	_____	(Activity)	.5	_____
SMS	_____	(Activity)	.5	_____
Distribution Sequences (20 credits)				
*	CHE	130	General Chemistry I	4 _____
*	CHE	212	Organic Chemistry I	4 _____
	HIS	101	World History I	3 _____
	HIS	102	World History II	3 _____
	_____	_____	(Literature I)	3 _____
	_____	_____	(Literature II)	3 _____
Distribution Electives (15 credits)				
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.				
Humanities (Division I)				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Science/Mathematics (Division II)				
*	MAT	110	Precalculus	_____
			OR	
*	MAT	220	Calculus I	3-4 _____
*	MAT	247	Statistics I	3 _____
_____	_____	_____	_____	_____
Social Sciences (Division III)				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)				
QUANTITATIVE (Q)	_____	DIVERSITY (V)	_____	WRITING (W)

COURSES IN MAJOR (54-55 credits total)

Freshman Year				
BIO	131	Introduction to Organisms	4	_____
BIO	132	Introduction to Cells	4	_____
Sophomore Year				
BIO	203	Introduction to Aquaculture	3	_____
BIO	205	Aquaculture Methods	1	_____
BIO	208	Environmental Problems	3	_____
BIO	212	Cell Biology	4	_____
BIO	220	Evolutionary Morphology	3	_____
Junior/Senior Year				
BIO	310	Invertebrate Zoology	4	_____
BIO	326	Marine Botany	4	_____
BIO	320	General Ecology		
		OR		
BIO	322	Biological Oceanography	4	_____
BIO	323	Fish Biology	4	_____
BIO	402	Genetics	4	_____
BIO	403	Advanced Aquaculture	3	_____
BIO	415N	Biology Seminar		
		OR		
BIO	417N	Environmental Biology Seminar	2	_____
+	BIO	_____	Cell/Molecular Elective	4 _____
Major Elective (3-4 credits)				
+	BIO	_____	Elective	3-4 _____
SUPPORT COURSES (19 credits total)				
PHS	211A	College Phys I or PHS 221 Gen. Phys I w/Calc	4	_____
CHE	213	Organic Chemistry II	4	_____
CHE	231	Quantitative General Chemistry	4	_____
CHE	321	Quantitative Analysis	4	_____
BUS	170	Introduction to Business	3	_____
FREE ELECTIVES (0 credits minimum)				
May be necessary to take additional credits to attain the minimum 120 credits required for graduation.				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

- * These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.
- Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.
- + Electives within the major are to be chosen from 300 to 400 level courses, exclusive of BIO 302T, 304, 324 and 328. A maximum 4 credits from BIO 407, 408N, 416, 418, 420 or 422 may be used to fulfill one BIO Elective; additional credits will count as Free Electives. Secondary Education minors must select BIO 320, and one course in Geological Science.
- † The Cell/Molecular elective must be chosen from BIO 405, BIO 406, BIO 409 or BIO 421.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 120

Effective: 9/09
Salem State College

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF SCIENCE
BIOLOGY
CELL AND MOLECULAR BIOLOGY CONCENTRATION**

GENERAL EDUCATION CORE REQUIREMENTS

Competencies				
<input type="checkbox"/>	Basic College Math			
<input type="checkbox"/>	Reading Comprehension			
<input type="checkbox"/>	Computer Literacy			
ENG	101	Composition I	3 _____	
ENG	102	Composition II	3 _____	
SPC	101	(Public Speaking)	3 _____	
SMS	_____	(Activity)	.5 _____	
SMS	_____	(Activity)	.5 _____	
Distribution Sequences (20 credits)				
*	CHE	130	General Chemistry I	4 _____
*	CHE	212	Organic Chemistry I	4 _____
	HIS	101	World History I	3 _____
	HIS	102	World History II	3 _____
	_____	_____	(Literature I)	3 _____
	_____	_____	(Literature II)	3 _____
Distribution Electives (15 credits)				
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.				
Humanities (Division I)				
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
Science/Mathematics (Division II)				
*	MAT	110	Precalculus I	_____
			OR	
*	MAT	220	Calculus I	4 _____
*	MAT	247	Statistics	3 _____
_____	_____	_____	_____	_____
Social Sciences (Division III)				
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)				
QUANTITATIVE (Q) _____ DIVERSITY (V) _____ WRITING (W) _____				

COURSES IN MAJOR (51-52 credits total)

Freshman Year				
BIO	131	Introduction to Organisms	4 _____	
BIO	132	Introduction to Cells	4 _____	
BIO	208	Environmental Problems	3 _____	
Sophomore Year				
BIO	212	Cell Biology	4 _____	
BIO	220	Evolutionary Morphology	3 _____	
BIO	313	Molecular Biology	4 _____	
Junior/Senior Year				
BIO	402	Genetics	4 _____	
BIO	406	Microbiology	4 _____	
BIO	409	Biological Chemistry	4 _____	
BIO	411	Immunology	4 _____	
BIO	415N	Biology Seminar	2 _____	
BIO	423	Experimental Methods in Molecular Biology	4 _____	
BIO	_____	Plant Biology Elective	4 _____	
Major Elective				
+	BIO	_____	Elective	3-4 _____
SUPPORT COURSES (19-20 credits total) ‡ 2 Semester sequence in Physics				
_____	_____	_____	4 _____	
_____	_____	_____	4 _____	
	CHE	213	Organic Chemistry II	4 _____
	CHE	231	Quantitative General Chemistry	4 _____
†	_____	_____	Science/Mathematics Elective	3-4 _____
FREE ELECTIVES (2 credits minimum)				
May be necessary to take additional credits to attain the minimum 120 credits required for graduation.				
_____	_____	_____	_____	
_____	_____	_____	_____	

- * These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.
- Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.
- + Electives within the major are to be chosen from 300 to 400 level courses, exclusive of BIO 302T, 304, 324 and 328. A maximum 4 credits from BIO 407, 408N, 416, 418, 420 or 422 may be used to fulfill one BIO Elective; additional credits will count as Free Electives. Secondary Education minors must select BIO 320, and one course in Geological Science.
- ‡ The sequence can be chosen from PHS 211A and 212A, or PHS 221 and 222.
- † This elective must be chosen from the following courses: CHE 321, CHE 341, CHE 342, CHE 420, CSC 200, CSC 201J, MAT 221.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 120

Effective: 9/09

Salem State College

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF SCIENCE
BIOLOGY
ENVIRONMENTAL BIOLOGY CONCENTRATION**

GENERAL EDUCATION CORE REQUIREMENTS

Competencies				
<input type="checkbox"/>	Basic College Math			
<input type="checkbox"/>	Reading Comprehension			
<input type="checkbox"/>	Computer Literacy			
ENG	101	Composition I	3	_____
ENG	102	Composition II	3	_____
SPC	101	(Public Speaking)	3	_____
SMS	_____	(Activity)	.5	_____
SMS	_____	(Activity)	.5	_____
Distribution Sequences (20 credits)				
*	CHE	130	General Chemistry I	4 _____
*	CHE	212	Organic Chemistry I	4 _____
	HIS	101	World History I	3 _____
	HIS	102	World History II	3 _____
	_____	_____	(Literature I)	3 _____
	_____	_____	(Literature II)	3 _____
Distribution Electives (15 credits)				
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.				
Humanities (Division I)				
‡	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Science/Mathematics (Division II)				
*	MAT	110	Precalculus	_____
			OR	
*	MAT	220	Calculus I	3-4 _____
*	MAT	247	Statistics I	3 _____
	_____	_____	_____	_____
Social Sciences (Division III)				
‡	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)				
Q	Q	V	W	W

COURSES IN MAJOR (50-52 credits total)

Freshman Year				
BIO	131	Introduction to Organisms	4	_____
BIO	132	Introduction to Cells	4	_____
Sophomore Year				
BIO	208	Environmental Problems	3	_____
BIO	212	Cell Biology	4	_____
BIO	220	Evolutionary Morphology	3	_____
Junior/Senior Year				
BIO	_____	Plant Biology Elective	4	_____
BIO	_____	Animal Biology Elective	3-4	_____
BIO	320	General Ecology	4	_____
BIO	406	Microbiology		
		OR		
BIO	409	Biological Chemistry	4	_____
BIO	402	Genetics	4	_____
BIO	417N	Environmental Biology Seminar	2	_____
Major Electives (11-12 credits)				
+	BIO	_____	Elective	3-4 _____
+	BIO	_____	Elective	4 _____
+	BIO	_____	Elective	4 _____
SUPPORT COURSES (25-26 credits total)				
GLS	100	Physical Geology w/lab	4	_____
CHE	213	Organic Chemistry II	4	_____
CHE	231	Quantitative General Chemistry	4	_____
PHS	211A	College Phys I		
		OR		
PHS	221	Gen. Phys I w/Calc	4	_____
†	_____	_____	Elective (Group A)	3-4 _____
†	_____	_____	Elective (Group A)	3 _____
†	_____	_____	Elective (Group A or B)	3 _____
FREE ELECTIVES (0 credits minimum)				
May be necessary to take additional credits to attain the minimum 120 credits required for graduation.				
_____	_____	_____	_____	_____

- * These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.
- Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.
- + The BIO Elective must be chosen from 300 to 400 level courses, **exclusive** of BIO 302T, 304, 324 and 328. A maximum of 4 credits from BIO 407, 408N, 416, 418, 420, or 422 may be used to fulfill one BIO Elective; additional credits will count as Free Electives.
- † Electives within the major are to be chosen from the following (minimum of two courses from Group A and a third course from either Group A or Group B):
Group A-GPH 376P, GPH 340, GPH 383P, (GPH 344 or GLS 210), GPH 377, GPH 286P, GLS 120, GLS 160, GLS 214, GLS 353, GLS 356.
Group B-ECO 319, IDS 220, IDS 325, PHL 224, POL 319, POL 322.
- ‡ At least one Division I or Division III distribution elective must be chosen from Group B.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 120

Effective: 9/09

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF SCIENCE
BIOLOGY
MARINE BIOLOGY CONCENTRATION**

GENERAL EDUCATION CORE REQUIREMENTS

COURSES IN MAJOR (54-56 credits total)

Competencies			
<input type="checkbox"/>	Basic College Math		
<input type="checkbox"/>	Reading Comprehension		
<input type="checkbox"/>	Computer Literacy		
ENG	101	Composition I	3 _____
ENG	102	Composition II	3 _____
SPC	101	(Public Speaking)	3 _____
SMS	_____	(Activity)	.5 _____
SMS	_____	(Activity)	.5 _____
Distribution Sequences (20 credits)			
*	CHE	130	General Chemistry I 4 _____
*	CHE	212	Organic Chemistry I 4 _____
	HIS	101	World History I 3 _____
	HIS	102	World History II 3 _____
	_____	_____	(Literature I) 3 _____
	_____	_____	(Literature II) 3 _____
Distribution Electives (15 credits)			
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.			
Humanities (Division I)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Science/Mathematics (Division II)			
*	MAT	110	Precalculus 4 _____
		OR	
*	MAT	220	Calculus I 3-4 _____
*	MAT	247	Statistics I 3 _____
_____	_____	_____	_____
Social Sciences (Division III)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)			
QUANTITATIVE (Q)	_____	DIVERSITY (V)	_____
		WRITING (W)	_____

Freshman Year			
BIO	131	Introduction to Organisms	4 _____
BIO	132	Introduction to Cells	4 _____
Sophomore Year			
BIO	208	Environmental Problems	3 _____
BIO	212	Cell Biology	4 _____
BIO	220	Evolutionary Morphology	3 _____
Junior/Senior Year			
BIO	310	Invertebrate Zoology	4 _____
BIO	322	Biological Oceanography	4 _____
BIO	326	Marine Botany	4 _____
BIO	323	Fish Biology	4 _____
		OR	
BIO	341	Biology of Marine Mammals	3-4 _____
BIO	402	Genetics	4 _____
BIO	415N	Biology Seminar	4 _____
		OR	
BIO	417N	Environmental Biology Seminar	2 _____
†	BIO	_____ Cell/Molecular or Structure/Function Elective	4 _____
Major Electives (11-12 credits)			
+	BIO	_____ Biology Elective	4 _____
+	BIO	_____ Biology Elective	3-4 _____
+	BIO	_____ Biology Elective	4 _____
SUPPORT COURSES (16 credits total)			
‡ 2 Semester sequence in Physics (8 credits)			
_____	_____	_____	4 _____
_____	_____	_____	4 _____
CHE	213	Organic Chemistry II	4 _____
CHE	231	Quantitative General Chemistry	4 _____
FREE ELECTIVES (2 credits minimum)			
May be necessary to take additional credits to attain the minimum 120 credits required for graduation.			
_____	_____	_____	_____
_____	_____	_____	_____

* These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.

Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.

+ Electives within the major are to be chosen from 300 to 400 level courses, exclusive of BIO 302T, 304, 324, and 328. A maximum 4 credits from BIO 407, 408N, 416, 418, 420 or 422 may be used to fulfill one BIO Elective; additional credits will count as Free Electives. Secondary Education minors must select BIO 320, and one course in Geological Sciences.

† The Cell/Molecular or Structure/Function elective must be chosen from 400-level courses AND have a laboratory.

‡ The sequence can be chosen from PHS 211A and 212A, or Physics 221 and 222.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 120

Effective: 9/09

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF SCIENCE
BIOLOGY**

**MEDICAL TECHNOLOGY CONCENTRATION
NON-CLINICAL OPTION**

GENERAL EDUCATION CORE REQUIREMENTS

Competencies				
<input type="checkbox"/>	Basic College Math			
<input type="checkbox"/>	Reading Comprehension			
<input type="checkbox"/>	Computer Literacy			
ENG	101	Composition I	3	_____
ENG	102	Composition II	3	_____
SPC	101	(Public Speaking)	3	_____
SMS	_____	(Activity)	.5	_____
SMS	_____	(Activity)	.5	_____
Distribution Sequences (20 credits)				
*	CHE	130	General Chemistry I	3-4 _____
*	CHE	212	Organic Chemistry I	3-4 _____
	HIS	101	World History I	3 _____
	HIS	102	World History II	3 _____
	_____	_____	(Literature I)	3 _____
	_____	_____	(Literature II)	3 _____
Distribution Electives (15 credits)				
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.				
Humanities (Division I)				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Science/Mathematics (Division II)				
*	MAT	110	Precalculus	_____
			OR	
*	MAT	220	Calculus I	3-4 _____
*	MAT	247	Statistics I	3 _____
_____	_____	_____	_____	_____
Social Sciences (Division III)				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)				
QUANTITATIVE (Q)	_____	DIVERSITY (V)	_____	WRITING (W)
	_____		_____	_____

COURSES IN MAJOR (48-49 credits total)

Freshman Year

BIO	131	Introduction to Organisms	4	_____
BIO	132	Introduction to Cells	4	_____

Sophomore Year

BIO	200	Anatomy and Physiology I	4	_____
BIO	201	Anatomy and Physiology II	4	_____
BIO	208	Environmental Problems	3	_____
BIO	212	Cell Biology	4	_____

Junior/Senior Year

BIO	316	Parasitology	4	_____
BIO	402	Genetics	4	_____
BIO	406	Microbiology	4	_____
BIO	409	Biological Chemistry	4	_____
BIO	411	Immunology	4	_____
BIO	415	Biology Seminar	2	_____

Major Elective

+	BIO	_____	Biology Elective	3-4	_____
---	-----	-------	------------------	-----	-------

SUPPORT COURSES (24 credits total)

‡ 2 Semester sequence in Physics (8 credits)

_____	_____	_____	_____	4	_____
_____	_____	_____	_____	4	_____
CHE	213	Organic Chemistry II	4	_____	
CHE	231	Quantitative General Chemistry	4	_____	
CHE	321	Quantitative Analysis	4	_____	
CHE	420	Instrumental Analysis for Clinical Chemists	4	_____	

FREE ELECTIVES (1 credit minimum)

May be necessary to take additional credits to attain the minimum 120 credits required for graduation.

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

- * These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.
- Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.
- + Electives within the major are to be chosen from 300 to 400 level courses, exclusive of BIO 302T, 304, 324, and 328. A maximum 4 credits from BIO 407, 408N, 416, 418, 420, or 422 may be used to fulfill one BIO Elective; additional credits will count as Free Electives. Secondary Education minors must elect BIO 320, and one course in Geological Sciences.
- ‡ The sequence can be chosen from PHS 211A and 212A, or PHS 221 and 222.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 120

Effective: 9/09

Salem State College

Advisor: _____

Name: _____

Date admitted into Major: _____

Transfer credits: _____

**BACHELOR OF SCIENCE
BIOLOGY
NUCLEAR MEDICINE TECHNOLOGY CONCENTRATION**

GENERAL EDUCATION CORE REQUIREMENTS

Competencies			
<input type="checkbox"/>	Basic College Math		
<input type="checkbox"/>	Reading Comprehension		
<input type="checkbox"/>	Computer Literacy		
ENG	101	Composition I	3 _____
ENG	102	Composition II	3 _____
SPC	101	(Public Speaking)	3 _____
SMS	_____	(Activity)	.5 _____
SMS	_____	(Activity)	.5 _____
Distribution Sequences (20 credits)			
*	CHE	130	General Chemistry I 3-4 _____
*	CHE	212	Organic Chemistry I 3-4 _____
	HIS	101	World History I 3 _____
	HIS	102	World History II 3 _____
	_____	_____	(Literature I) 3 _____
	_____	_____	(Literature II) 3 _____
Distribution Electives (15 credits)			
Among the distribution electives, the student must earn at least 3 but no more than 9 additional semester hours in each of the three divisions.			
Humanities (Division I)			
*	PHL	218	Medical Ethics 3 _____
_____	_____	_____	_____
_____	_____	_____	_____
Science/Mathematics (Division II)			
*	MAT	110	Precalculus OR _____
*	MAT	220	Calculus I 3-4 _____
*	MAT	247	Statistics I 3 _____
_____	_____	_____	_____
Social Sciences (Division III)			
_____	_____	_____	_____
_____	_____	_____	_____
(Note: Courses allowable as distribution electives are marked DI, DII, or DIII in the College Catalog.)			
QUANTITATIVE (Q)	_____	DIVERSITY (V)	_____
		WRITING (W)	_____

COURSES IN MAJOR (59 credits total)

Freshman Year			
BIO	105	Biological Systems	4 _____
BIO	200	Anatomy and Physiology I	4 _____
Sophomore Year			
BIO	201	Anatomy and Physiology II	4 _____
BIO	212	Cell Biology	4 _____
Junior Year			
NMT	200	Intro. to Nuclear Medicine Technology	1 _____
BIO	340	Pathology	3 _____
BIO	402	Genetics	4 _____
BIO	409	Biological Chemistry	4 _____
BIO	411	Immunology	4 _____
Summer of Junior Year			
NMT	401A	Nuclear Medicine Clinical Practicum I	3 _____
Senior Year			
NMT	402	Nuclear Medicine Clinical Practicum II	4 _____
NMT	403	Nuclear Medicine Clinical Practicum III	4 _____
NMT	410A	Clinical Nuclear Medicine (Radioimmunoassay)	4 _____
NMT	411	Clinical Nuclear Medicine (Imaging)	3 _____
NMT	415N	Nuclear Medicine Seminar	1 _____
NMT	420	Nuclear Instrumentation	4 _____
NMT	430	Radiochemistry, Radiopharmaceuticals and Radiation Safety	4 _____
SUPPORT COURSES (19 credits total)			
‡ 2 Semester sequence in Physics (8 credits)			
_____	_____	_____	4 _____
_____	_____	_____	4 _____
CHE	213	Organic Chemistry II	4 _____
CHE	231	Quantitative General Chemistry	4 _____
PHS	315	Introduction to Radiation Physics	3 _____
FREE ELECTIVES (0 credit minimum)			
_____	_____	_____	_____
_____	_____	_____	_____

May be necessary to take additional credits to attain the minimum 124 credits required for graduation.

* These are **required** support courses which may also be used to satisfy the indicated Distribution requirements. A student may choose to fulfill Distribution requirements with courses other than the ones listed, but these listed courses must still be taken.
 Note: If a course is used to satisfy two or more requirements, (for example, a support course and a distribution elective), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the total credits required for graduation.
 ‡ The sequence can be chosen from PHS 211A and 212A, or PHS 221 and 222.

LEVEL I TO BE COMPLETED IN THE FIRST 30 CREDITS LEVEL II TO BE COMPLETED IN THE FIRST 53 CREDITS LEVEL III TO BE COMPLETED BEFORE GRADUATION

Exceptions in the timing of courses will be made for transfer students.

Total minimum credits for graduation: 124

Effective: 9/09

Salem State College