

**EAST TENNESSEE STATE UNIVERSITY -- COLLEGE OF ARTS & SCIENCES  
BIOLOGY MAJOR - BIOCHEMISTRY CONCENTRATION**

Name: \_\_\_\_\_ SID: \_\_\_\_\_ Term Entered: \_\_\_\_\_  
 Advisor: \_\_\_\_\_ Degree: BA \_\_\_ BS \_\_\_ **EFFECTIVE FALL 2007**

<b>CHEMISTRY</b>	
CHEM-1110/1111: General Chemistry I (4)	_____
CHEM-1120/1121: General Chemistry II (4)	_____
CHEM-2010/2011: Organic Chemistry I (5)	_____
CHEM-2020/2021: Organic Chemistry II (5)	_____
CHEM-2220/2221: Quantitative Analysis (4) (T)	_____
CHEM-3611: Introductory Integrated Lab (2) (W)	_____
CHEM-3710: Principles of Physical Chem (3) OR	_____
CHEM-3750 Physical Chemistry I (3)	_____
<b>PHYSICS</b>	
PHYS-2010/2011: General Physics I – Non-Calculus (4)	_____
PHYS-2020/2021: General Physics I – Non-Calculus (4) OR	_____
PHYS-2110, 2120: Technical Physics I, II, Calculus Based (10)	_____
<b>BIOLOGY CORE REQUIREMENTS:</b>	
BIOL-1110/1111: Biol Sci Majors I (4)	_____
BIOL-1120/1121: Biol Sci Majors II (4)	_____
BIOL-1130/1131: Biol Sci Majors III (4) (T)	_____
BIOL-3100: General Genetics (3)	_____
BIOL-3141: General Genetics Lab (2) (W)	_____
BIOL-4147/4157: Biochem of Macromolecules (3,2)(W)	_____
BIOL-4167/4177: Biochem of Metabolism (3,2) (W)	_____
<b>The Biology Major with a Biochemistry Concentration must select one of the following courses:</b>	
BIOL-3150/3151: Cell Biology (3,2) (O)	_____
BIOL-4597: Recombinant DNA Lab (3) (T)	_____
BIOL-4647: Molecular Biology (3)	_____
HSCI-3320/3321: General Microbiology (4) (W)	_____
HSCI-3540: Immunology (3)	_____
PHYS-3510: Introduction to Biophysics (3)	_____
<b>Select at least one (1) course from two (2) of the following three Advanced Biology areas:</b>	
<b>ORGANISMAL:</b>	
BIOL-3220: Comparative Anatomy (4)	_____
BIOL-3230: Vertebrate Embryology (4)	_____
BIOL-3240: Pland Anatomy (4)	_____
BIOL-3260: Animal Physiology (4)	_____
BIOL-4267: Plant Development (4)	_____
BIOL-4277: Neurobiology (4)	_____
BIOL-4357: Ethology (3) (O)	_____
BIOL-4487: Paleobotany (4)	_____
BIOL-4767: Plant Physiology (4) (O)	_____
<b>POPULATION:</b>	
BIOL-3350: Ecology (4)	_____
BIOL-3460: Invertebrate Zoology (4)	_____
BIOL-4337: Plant Systematics (4)	_____
BIOL-4357: Ethology (3)	_____
BIOL-4360: Evolution (3) (W,O)	_____
BIOL-4367: Systems Ecology (3) (T)	_____
BIOL-4737: Conservation Biology (4) (O)	_____
BIOL-4747: Population Genetics (4) (T)	_____
BIOL-4867: Marine Biology (4)	_____
<b>BIODIVERSITY:</b>	
BIOL-3410: Vertebrate Zoology (4)	_____
BIOL-3420: Plant Biology (4) (W,O)	_____
BIOL-3450: Algae and Fungi (4)	_____
BIOL-3460: Invertebrate Zoology (4)	_____
BIOL-3480: General Entomology (4)	_____
BIOL-4047: Ecological Field Trip (3)	_____
BIOL-4247: Appalachian Flora (3)	_____
BIOL-4257: Appalachian Fauna (3)	_____
BIOL-4337: Plant Systematics (4)	_____
BIOL-4450: Bryophytes, Ferns, Seed Plants (4)	_____
BIOL-4477: Ornithology (4)	_____
BIOL-4487: Paleobotany (4)	_____
HSCI-3320/3321: General Microbiology (4) (W)	_____
<b>OTHER BIOLOGY COURSES THAT MEET "INTENSIVE" REQUIREMENTS</b>	
BIOL-4300: Seminar in Biology (2) (O)	_____
BIOL-4757: Developmental Biology (3) (O)	_____

<b>TYPICAL PROGRAM OF STUDY</b>	
<b>Fall Semester</b>	<b>FRESHMAN YEAR</b>
BIOL 1110/1111 Biol Sci Majors Lec & Lab I	4
CHEM 1110/1111 General Chemistry Lec & Lab I	4
ENGL 1010 Critical Reading and Expository Writing	3
MATH 1910 Calculus I	4
	15
<b>Spring Semester</b>	
BIOL 1120/1121 Biol Sci Majors Lec & Lab II	4
CHEM 1120/1121 General Chemistry Lec & Lab II	4
ENGL 1020 Critical Thinking and Argumentation	3
MATH 1920 Calculus II	4
	15
<b>Fall Semester</b>	<b>SOPHOMORE YEAR</b>
BIOL 1130/1131 Biol Sci Majors Lec & Lab III	4
CHEM 2010/2011 Organic Chemistry Lec & Lab I	5
PHYS 2010/2011 Gen Physics I Lec & Lab (W) Non-Calc <sup>a</sup>	4
Communication: Oral Communication	3
	16
<b>Spring Semester</b>	
BIOL 3100/3141 General Genetics Lec & Lab (W)	5
CHEM 2020/2021 Organic Chemistry Lec & Lab II	5
PHYS 2020/2021 Gen Physics II Lec & Lab (W) Non- Calc <sup>a</sup>	4
Literature	3
	17
<b>Fall Semester</b>	<b>JUNIOR YEAR</b>
BIOL 4147/4157 Biochemistry of Macromolecules Lec & Lab (W)	5
HIST 2010 The United States To 1877	3
Social/Behavioral Sciences	3
Advanced Biology Course	4
	15
<b>Spring Semester</b>	
BIOL 4167/4177 Biochemistry of Metabolism Lec & Lab (W)	5
CHEM 2220/2221 Quantitative Analysis Lec & Lab (T)	4
HIST 2020 The United States Since 1877	3
Humanities/Fine Arts	3
	15
<b>Fall Semester</b>	<b>SENIOR YEAR</b>
Advanced Biology	4
Social/Behavioral Sciences	3
General Electives	3
Biochemistry Concentration Requirement	5
	15
<b>Spring Semester</b>	
CHEM 3710 Principles of Physical Chemistry	3
CHEM 3611 Intro Integrated Lab (W)	2
Humanities/Fine Arts	3
Biochemistry Concentration Requirements	4
	12

Total credit hrs = 120

**PROGRAM OPTIONS:**

<sup>a</sup>**Physics.** Students may take Technical Physics I and II Calculus Based (PHYS 2110/2120, 10 hours) rather than General Physics I and II Noncalculus (PHYS 2010/2011 and PHYS 2020/2021, 8 hours).

**Chemistry.** Students may take Physical Chemistry I (CHEM 3750, 3 hours) rather than Principles of Physical Chemistry (CHEM 3710, 3 hours). Additional chemistry courses are available: CHEM 3110 Descriptive Inorganic; CHEM 3760 Physical Chemistry II; CHEM 4200 Principles of Instrumental Analysis; CHEM 4611, 4621 or 4631 Advanced Integrated Lab.

**Biochemistry, Quillen College of Medicine.** Approved students who have completed Biochemistry of Macromolecules (BIOL 4147) and Biochemistry of Metabolism (BIOL 4167) may enroll for one of the courses listed below during their last semester of coursework. BIOC 5010, 5020, or 5030 Biomedical Science I, II, III

**Research.** Research is strongly advised for students with good academic records, especially those planning advanced study. Research Orientation (BIOL 3992, 2 hours) is available in the sophomore year. Research in Biology (Department of Biological Sciences, BIOL 4910, 1-4 hours), Research in Chemistry (Department of Chemistry, CHEM 4900, 1-3 hours), or Special Problems (Department of Biochemistry, BIOC 4900, 2-5 hours), can be taken during the senior year and/or during the preceding summer. Faculty members from the departments of biochemistry, biological sciences, or chemistry may direct the research project. It is expected that a departmental seminar will be presented based upon the research.

**CREDIT SUMMARY**

CHEMISTRY (27 hr required):	_____
BIOLOGY CORE (27 hr required):	_____
BIOL ADVANCED (9 hr minimum) :	_____
<b>TOTAL HOURS (120 hr minimum)</b>	<b>_____</b>

