Department of Biology Graduation Checklist https://biology.sfsu.edu/advising/undergraduate

LD=		Student:	E-mai	1				
UD=		Last First						
		Advisor:	Phone	9				
		BACHELOR OF ARTS IN GENERAL BIOLOGY						
Course is 3 units unle	ss otherwise noted. Prerequisites are list	ted in brackets next to course number.						
Lower Division Requi	rements (32-33 units)		Sp/Su	24 b	ased	on 2	023 of	ferings
	Prerequisites (must be completed							
	with a C- or better, unless otherwise			Fa	Cn.	Su		on
Class	stated; however, Chemistry	Class Name	Units	23	Sp 24	24	٧	DPR?
	prerequisite courses must be							
	completed with a C or better)							
BIOL 230		Introductory Biology I	5	yes	yes	no		
BIOL 240	Biol 230	Introductory Biology II [Meets GE Areas B2 (Life Science) & B3 (Lab Science)]	5	yes	yes	no		
CHEM 115	see http://bulletin.sfsu.edu/courses/chem/	General Chemistry I: Essential Concepts of Chemistry	5	yes	yes	yes		
		General Organic Chemistry [meets GE Area B1] - can		_				
CHEM 130	Chem 115	request substitution with CHEM 233; Need to use Advisor Request to update Degree Progress Report	3	yes	yes	yes		
CHEM 215	Chem 115	General Chemistry II (CHEM 216 is recommended)	3	yes	yes	yes		
PHYS 111/112	see http://bulletin.sfsu.edu/courses/phys/	General Physics I/Laboratory (3/1)	4	yes	yes	yes		
	see http://bulletin.sfsu.edu/courses/phys/		4	_	_			
PHYS 121/122 One course from the following		General Physics II/Laboratory (3/1)	4	yes	yes	yes		
	see http://bulletin.sfsu.edu/courses/math/	Florester Chilletter	1					
MATH 124		Elementary Statistics		yes	yes	yes		
MATH 226	see http://bulletin.sfsu.edu/courses/math/	Calculus I (4)		yes	yes	yes		
		Total lower division requirements (units):	32-33					
Note: Biol 231, Advisii	ng for Success as a Biology Major (1 un	it, online) is HIGHLY RECOMMENDED						1
					_		ľ	on
Upper Division Requi	rements (14-23 required units) (1-9 add	ditional elective units)		Fa	Sp	Su	٧	DPR?
	T			23	24	24		
BIOL 355	Biol 230 + Biol 240 + Chem 115	Genetics [meets GE UD-B requirement]	3	yes	yes	yes		
	e from the following (3 units):	age of the plants of the	1	T				
BIOL 442	Biol 402 + Biol 402GW + Chem 349	Microbial Physiology		no	no	no		
BIOL 525	Biol 230 + Biol 240 + Chem 130	Plant Physiology		no	yes	no		
BIOL 612	Biol 230 + Biol 240 + Chem 130 + Phys 121	Human Physiology		yes	yes	yes		
BIOL 630	Biol 230 + Biol 240 + [Chem 130 or	Animal Physiology		yes	no	no		
BIOL 030	Chem 233]	Animal Fifysiology		усз	110	110		
One cell biology cours	e from the following (3-4 units):							
BIOL 350	Biol 230 + Biol 240 + Chem 115	Cell Biology		yes	yes	yes		
BIOL 358	Biol 230 + Math 199	Forensic Genetics: Math Matters (4)		no	no	no		
BIOL 401	Biol 230 + Biol 240 + Chem 233	General Microbiology		yes	yes	no		
BIOL 435	Biol 350 or Biol 401	Immunology		yes	yes	no		
BIOL 453	Biol 230 + Biol 240 + Biol 355	General Parasitology		yes	no	no		
CHEM 349	see http://bulletin.sfsu.edu/courses/chem/	General Biochemistry		yes	yes	yes		
One physiology or cel	l biology laboratory course associated v	with a Physiology or Cell Biology course selected from						
BIOL 351GW	Biol 350 + Biol 355 + GE Area 2	Experiments in Cell and Molecular Biology - GWAR (4)		yes	yes	no		
BIOL 402GW	Biol 401 (may be taken concurrently) + GE Area 2	General Microbiology Laboratory - GWAR		yes	yes	no		
BIOL 436	Biol 402GW, concurrent enrollment in	Immunology Laboratory (2)		no	no	no		
DIOL 430	Biol 435	minimumology Laboratory (2)		110	110	110		
BIOL 443	Biol 442 (may be taken concurrently)	Microbial Physiology Laboratory (2)		no	no	no		
BIOL 454	Biol 453 (may be taken concurrently)	Parasitology Laboratory (1)		yes	no	no		
BIOL 526	Biol 230 + Biol 240 + Chem 130	Plant Molecular Physiology Laboratory (2)		no	no	no		
BIOL 613GW	GE Area 2 + [Biol 612 or Biol 630 (may be taken concurrently)]	Human Physiology Laboratory - GWAR		yes	yes	yes		
BIOL 631GW	GE Area 2 + Biol 612 or Biol 630	Animal Physiology Laboratory - GWAR (4)		yes	yes	no		
		Biochemistry I Laboratory (not listed in Bulletin, but will		, 55	,	0		
CHEM 343	see http://bulletin.sfsu.edu/courses/chem/	count. Need to use Advisor Request to update Degree Progress Report)		yes	yes	no		
	1	- ' '	<u> </u>					
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One ecology course from the following (2-4 units):		Fa 23	Sp 24	Su 24	٧	DPR?		
BIOL 482	Biol 230 + Biol 240	Ecology (4)		yes	yes	no		
BIOL 490	Biol 230 + Biol 240	Ecology of Infectious Disease (4)		no	yes	no		
BIOL 529GW	Biol 230 + Biol 240 + GE Area A2	Plant Ecology - GWAR (4)		no	no	no		
BIOL 532	Biol 230 + Biol 240	Restoration Ecology		no	no	no		
BIOL 534	Biol 230 + Biol 240	Wetland Ecology (4)		no	yes	no		
BIOL 580	Biol 230 + Biol 240 + Chem 215 + Chem 216; ecology course recommended	Limnology		no	no	no		
BIOL 582	Biol 230 + Biol 240	Biological Oceanography and Limnology (4)		no	yes	no		
BIOL 585	Biol 230 + Biol 240	Marine Ecology		no	no	no		
BIOL 586GW	Biol 230 + Biol 240 + GE Area 2	Marine Ecology Laboratory - GWAR (4)		no	yes	no		
One evolution or o	rganismal biology course from the followin	ng (1-5 units):						
BIOL 328	Biol 230	Human Anatomy (4)		yes	yes	no		
BIOL 337	Biol 230 + Biol 240 + Biol 355	Evolution		yes	yes	no		
BIOL 380	Biol 355 (Biol 337 is recommended)	Evolutionary Developmental Biology		no	no	no		
BIOL 382	Biol 350 + Biol 355, GPA 3.0 or higher	Developmental Biology		no	no	no		
BIOL 425	Biol 230 + Biol 240 + [Biol 355 or Biol 401 or Biol 350] + Chem 130	Emerging Diseases		no	yes	no		
BIOL 453/454	Biol 230 + Biol 240 + Biol 355; may be taken concurrently with Biol 454	General Parasitology/Laboratory (3/1)*		yes	no	no		
BIOL 460	Biol 230 + Biol 240	General Entomology (4)		no	no	no		
BIOL 475GW	Biol 230 + Biol 240 + GE Area 2	Herpetology - GWAR		no	yes	no		
BIOL 478GW	Biol 230 + Biol 240 + GE Area 2	Ornithology - GWAR (4)		no	yes	no		
BIOL 500	Biol 230 + Biol 240	Evolution and Diversity of Plants (4)		no	no	no		
BIOL 502	Biol 230 + Biol 240, GPA 3.0 or higher	Biology of the Algae		no	yes	no		
BIOL 504	Biol 230 + Biol 240	Biology of the Fungi (4)		no	no	no		
BIOL 505	Biol 230 + Biol 240	Comparative Anatomy of Vascular Plants (4)		yes	no	no		
BIOL 514	Biol 230 + Biol 240, GPA 3.0 or higher	Plant Biodiversity and California Field Botany (5)		no	yes	no		
BIOL 555	Biol 230 + Biol 240	Marine Invertebrate Zoology (4)		yes	no	no		
BIOL 570GW	Biol 230 + Biol 240 + GE Area 2	Biology of Fishes - GWAR (4)		yes	no	no		
BIOL 600	Biol 230 + Biol 240	Animal Behavior		no	yes	no		
BIOL 638	Biol 230, GPA 3.0 or higher	Bioinformatics & Genome Annotations (4)		yes	yes	no		

^{*}Note: cannot double count Biol 453 to meet both Cell Biology & Evolution/Organismal Biology requirements

There are multiple options for meeting the GWAR requirement (course name must have GW) - consult with advisor GWAR course must be completed with a C- or better to meet graduation requirements

Upper division electives selected in consultation with an advisor:.....

1 - 11 additional units

- •Courses can be those listed above, not already used to satisfy requirements in those categories.
- $\bullet \textit{Only one of the following courses can be included among those selected: } \\$
- BIOL 317, BIOL 327, BIOL 330, and BIOL 349.
- $\bullet \textit{Up to three units of BIOL 699 can be used within the UD elective units } \\$

•All Biology cours	All Biology courses that have BIOL 230 and/or BIOL 240 as prerequisites can also be used as electives.					on		
Upper Division ele	Upper Division elective courses include: 1-11 elective units to meet 57 units (incorrect in Bulletin) Fa Sp Su 23 24 24		٧	DPR?				
BIOL 332	Biol 230 + Biol 240 + Biol 355, GPA 3.0 or higher	Health Disparities in Cancer		yes	no	no		
BIOL 344GW	Biol 230 + Biol 240 + GE Area 2, GPA 3.0 or higher	Research Skills - GWAR		no	no	no		
BIOL 461	Biol 230 + Biol 240	Insect Taxonomy (4)		no	no	no		
BIOL 464	Biol 230 + Biol 240	Medical Entomology		no	no	no		
BIOL 470	Biol 230 + Biol 240	Natural History of Vertebrates (4)		no	yes	no		
BIOL 492	Biol 230 + Biol 240	Comparative Anatomy of Vertebrates (4)		no	no	no		
BIOL 530	Biol 230 + Biol 240	Conservation Biology		yes	no	no		
BIOL 550	Biol 230 + Biol 240 + upper division ecology course	Plant and Animal Interactions (4)		no	no	no		
BIOL 555	Biol 230 + Biol 240	Marine Invertebrate Zoology (4)		yes	no	no		
BIOL 556	Biol 230 + Biol 240	Natural History of Marine Invertebrates (4)		no	no	no		
BIOL 577	Math 107 and 108 OR Math 199 OR Math 2226; Biol 230 and 240 [or two 200-level or higher ERTH courses]	Ecological and Environmental Modeling (4)		yes	no	no		
BIOL 607	Biol 230 + Biol 240 + Biol 355	Conservation and Management of Marine Mammals		no	no	no		
BIOL 609	Biol 230	Physics in Medicine		no	no	no		

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						1	on
			Fa 23	Sp 24		٧	DPR?
BIOL 614	Biol 230 + Biol 240	Vertebrate Histology (4)	no	no	no		
BIOL 616	Biol 230 + Biol 240 + Phys 121 + [Biol 612 or Biol 630]	Cardiorespiratory Physiology	yes	no	no		
BIOL 620	Biol 230 + Biol 240	Endocrinology	no	no	no		
BIOL 621	Biol 230 + Biol 240 + Biol 330 + Chem 130; Biol 492 or a vertebrate anatomy course recommended	Reproductive Physiology	yes	no	yes		
BIOL 622	Biol 230 + Biol 240	Hormones and Behavior	no	no	no		
BIOL 623	Biol 230 + Biol 240 + Biol 612 + Chem 130, GPA 3.0 or higher	Pharmacology	no	no	no		
BIOL 627	Biol 230 + Chem 115 + Phys 121	Biophysics	no	yes	no		
BIOL 640	Biol 230 + Biol 240 + Chem 130 + Phys 121; Biol 350 and Biol 612 recommended	Cellular Neurosciences	yes	no	no		
BIOL 652	Biol 230 + Biol 240 OR one upper division biology course	Science Education Partners in Biology (4)	no	no	no		

Note: Bulletin double lists courses from the required list in the electives list - cannot double count courses

Course Num.		Course Title	Units
What course has stud	lent taken to meet GWAR?	_	_

GWAR course must be completed with a C- or better to meet graduation requirements

	kequire	a Completea
Total upper division unit requirements (required and	24-	
elective)	25	
Total units for major	57	
Please ignore Bulletin "49-64" units - this is incorrect.	. This s	hould be a 57-unit minimum.

Recommendations for targeted post-graduate plans

Health profession	Students must take Chem 216
	Students must take the full year of organic chemistry
	with lab: Chem 233/234 and Chem 335/336.
	Students should take biochemistry: Chem 349
Graduate programs	Students must take Chem 216
	Students must take the full year of organic chemistry
	with lab: Chem 233/234 and Chem 335/336.
	Students should take the full year of biochemistry:
	Chem 340 and Chem 341
	Student should consult with major advisor to
	optimize course plan for goals.
	Completion of the BA in General Biology and
	additional geoscience breadth courses can be used
K-12 Teaching	to meet the Subject Matter Competency
	Requirements for the Single Subject Credential in
	Biological Sciences
	Students must take Chem 216
	Students must take Biol 337 (Evolution, 3 units)
	Students must take an ecology class with a lab/field
	component
	Geosciences Breadth:
	ASTR 115/116: Introduction to Astronomy, 3 units
	and Lab, 1 unit
	ERTH 112: Our Dynamic Earth Lecture and Lab, 4
	units ERTH 400: Earth Systems I, 3 units (includes lab) or
	ERTH 535: Planetary Climate Change, 4 units
	(includes lab)
	Student transcript should contain: Biol 355 Genetics,
Forensics Career	Biol 357 Molecular Genetics, Chem 349 General
	Biochemistry, Math 124 Statistics and Chem
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321/322 Analytical Chemistry.