University of	Mississip	pi 5/2012																															1		$\equiv$	
Department Course #	Bisc 102	Risc 104	Risc 160	Bisc 161	Risc 162	Bisc 163	Risc 210	Bisc 300	Bisc 301	Risc 318	Risc 320	Risc 322	Bisc 327	Bisc 330	Bisc 331	Risc 333	Risc 334	Risc 336		Biology Bisc 350	Risc 415	Risc 440	Risc 441	Risc 445	Risc 491	Risc 492	Risc 502	Risc 504	Bisc 512 Bisc	518 Risc	522 Risc 5	24 Risc 528	8 Risc 529	Bisc 533	Risc 541	Risc 543
_ Ju.50 #			DISC 100	- LAUGE 101	Linut 102	July 103	Linut 210	200	Sec. 301	500 310	SHIP DEU		au d£1	Dia 330		Linux 333	DISC 334	CHISC 330	Sec. 330	556 500		5130 440	D100 441	DID 440	S100 401	- Linux 402	LHUN 002	LIGO 004	LAGO G12 BISC	DISC	DISC S			Laure 033	-100 041	_100 343
Course	Inquiry Into Life - Human Biology	Inquiry into Life - The Environme nt	Pieteries	Biological	Protected	Biological	Principles	Research			Intro	General	Intro Neuroscie nce	Intro	Comparitive Anatomy of the Vertebrates	General			Invertebrate		Vertebrate	Cell & Molecular Biology	Territori	Intro to	Directed	Proceed			A-iI N6		elected . Recovered	Principle Developr	n Fortunion	Advanced	Cell Biol F	Functional
Course Name	Biology	nt	Biological Sciences I	Biological Sciences I Lab	Biological Sciences II	Biological Sciences II Lab	Principles of Micro- biology	Research Methods in Biology	Evolution	Botany	Intro Marine Biology	Ecology	nce	Physiology	of the Vertebrates	General Micro- biology	Omithology	Genetics	Zoology	Mammalogy	Histology	Biology	Tropical Botany	Intro to Coral Reef Ecology	Study I	Directed Study II	Mycology	Biometry	Animal Mic Behavior techni	ro- Micro ques Eco	obial Aqua ogy Bota	Developr tic ental ny Biology	Endocrino logy	Advanced Neuroscien N	Neurodegene ration	Functional Neuro- anatomy
			ACT Math	Bisc 160,										Bisc							Bisc				Bisc	Bisc										
Pre- requisite(s), if any			ACT Math 23; A/B Math 123, 125 or Chem 101	Bisc 160, ACT Math 23, A/B Math 123, 125 or Chem 101	Bisc 160 &	Bisc 160 & 161		Bisc 160/161, 162/163	Bisc 160/161, 162/163	Bisc 160/161, 162/163	Bisc 160/161, 162/163	Bisc 160/161, 162/163	Bisc 160/161, 162/163	Bisc 160/161, 162/163; Chem 105, 106	Bisc 160/161, 162/163	Bisc 160, 162; Chem 105, 106		Bisc 160/161, 162/163	Bisc 160/161, 162/163	Bisc 160/161, 162/163	160/161, 162/163, 330	Bisc 330 or Pharm 344, Bisc 336	Bisc 160/161, 162/163	Bisc 160/161, 162/163	Bisc 160/161, 162/163, Instructor	Bisc 160/161, 162/163, Instructor Approval				Bi 160/ 162/ 33	161, Bisi 163, 160/1 13 162/1	31,	Bisc 330, Chem 221, 222	Bisc 160/161, 162/163	Bisc 327 or 3 330 i	Bisc 330 or 331, or A/B in Psy 319
	none	none	Chem 101	Chem 101	161	161	none	162/163	162/163	162/163	162/163	162/163	162/163	106	162/163	105, 106		162/163	162/163	162/163	330	Bisc 336	162/163	162/163	Approval	Approval			Bisc 322	33	162/1	63 Bisc 440	221, 222	162/163	330 i	n Psy 319
Required for Major? Offerred to Non-major?	No	No	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	No	Yes	No	No	No	Yes/No	No	No	No	Yes for BS	No	No	No	No	No	No	No N	o N	o No	No	No	No	No	
Non-major?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes/No		Yes	Yes	Yes	Yes		Yes	Yes	No	Yes		Yes			Ye	s Y	es Yes	Yes Yes		Yes	No	Yes
	E1- Apply	quantitativ	e reasoning	and approp	riate mather	matics to des	cribe or exp	lain pheno	mena in the	natural w	orld	×		E1- Apply qu	antitative rea	soning and	appropriate	mathemati	cs to describ	e or explain pl	henomena i	n the natur	al world					х								
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	E3- Demoi	nstrate kno	wledge of b	asic physica	I principles a	and their app	lications to	the unders	tanding of li	ving syster	ms.																									
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						Mathemati	cs							Philosophy and Religion Phil 103													Physics	and Astroi	nomy		
Math 121	Math 125	Math 261	Math 262	Math 263	Math 264	Math 267	Math 268	Math 301	Math 302	Math 305	Math 319	Math 353	Math 375	Phil 103	Phys 211	Phys 212	Phys 221	Phys 222	Phys 213	Phys 214	Phys 223	Phys 224	Phys 303	Phys 308	Phys 309	Phys 310	Phys 313	Phys 315	Phys 317	Phys 318	Phys 319
	Basic Mathematics for Science and	Unified Calculus & Analytic	Unified Calculus & Analytic	Unified Calculus and Analytic	Unified Calculus and Analytic	Calculus for Business, Economics, and	Calculus for Business, Economics, and		AF-d			Elementary and Differiential		Logic: Critical Thinking	Division for	Division for	Lab for	Lab for							Thermodyr	Mechanics	Division and	Radiation	Introduction to Modern	Introduction to Modern	Optics
College Algebra	and Engineering	Analytic Geometry I	Analytic Geometry II	Analytic Geometry 3	Analytic Geometry 4	and Accountancy 1	and Accountancy 2	Discrete Mathematics	Applied Modern Algebra	Foundations of Math	Introduction to Algebra	Differiential Equations	Introduction to Statistical Methods	Ininking	Physics for Science and Engineering 1	Physics for Science and Engineering 2	Lab for Science and Engineering 1	Science and Engineering 2	General Physics 1	General Physics 2	Laboratory Physics 1	Laboratory Physics 2	Physical Theory	Mathematical Physics	amics		Physics and Biophysics of Air and Water	Science	to Modern Physics 1	Modern Physics 2	.,
														No	MA 261	Phys 211, MA 261	MA 261	Phys 211, Phys 221	(MA 121 & MA 123) or MA 125 or MA 261	Dhue 213	(MA 121 & MA 123) or	Phys 213, Phys 223	No	Phys 212	Phys 212	Phys 212, MA 353	Phys 212 or Phys 214	MA 262 and	MA 262, Phys	MA 263, Phys 317	MA 262, (Phys 212 or 214)
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E2- Demonstr	rate understand	ling of the pro	cess of scient	ific inquiry, ar	nd explain how	scientific know	vledge is discov	vered and validat	ted.	1			ı				×	l x	E2- Demonstra	te understandi	ng of the proces	ss of scientific	inquiry, and	explain how scie	entific knowle	edge is discove	ered and validat	ed.			
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E3- Demonstr	rate knowledge	of basic phys	ical principles	and their app	lications to th	e understanding	of living syste	ems.							E3- Demonstra	te knowledge of	basic physical	principles and	their application	s to the unders	tanding of living	systems.						<u> </u>			
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E5- Demonstr	rate knowledge	or now blome	lecules contri	Dute to the sti	ructure and rur	nction of cells.	ı		1	1			ı			ı		ı		l				ı	1	ı				1	
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E6- Apply uni	derstanding of p	principles of h	l now molecular	and cell asse	mblies, organs	I s, and organism	s develop struc	cture and carry o	ut function.									·		'						,		'			
F7 F		l 					l						l					l		l						L					
E7- Explain h	ow organisms s	sense and con	trof their inter	nar environme	ent and how th	ney respond to e	external change						ı			1								I				ı			
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E8- Demonstr	rate an understa	anding of how	the organizin	g principle of	evolution by n	l natural selection	l explains the d	liversity of life or	n earth.				_			-		-							1	-		_			
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										Political Science			F	Psychology			Antr	logy and opology	
Phys 321	Phys 401	Phys 402	Phys 413	Phys 415	Phys 417	Phys 425	Phys 451	Phys 463	Phys 464	Pol 251	Psy 202 Flemenary	Psy 319 Brain and	Psy 322 Drugs and		Psy 392 Lab in Psy:	Psy 394 Lab in Psy:	Soc 365	Anth 305	<u> </u>
	Electromagn	Electromagn	Introduction to	Radiation	Modern	Nuclear and Particle	Introduction	Senior	Senior	Intro to	Statistics	Behavior	Behavior	Behavioral Neuroscience	Experimental Social Psy	Cognition and Perception			<b>,</b>
Electronics	etic Theory 1	etic Theory 2	Biophysics	Physics Lab	Physics Lab	Physics Laboratory	to Quantum Mechanics	Research Project	Research Project	Political Science							Social Research		1
						Laboratory				Methods	Math ACT	Bisc 102 or	Q hours of	Psy 201,Psy	Dev 201 Dev	Dev 201 Dev	Methods	Archaeology	1
											22 or Math 115 or	Bisc 160 or Psy 201	Psy courses	202, Psy 319 or Psy 322	Psy 201,Psy 202, Psy 315 or Psy 321 or Psy	202, Psy 320 or Psy 326			Entering Student Competency (E1, E2, E3,) and Learning Objectives (1,2,3)
MA 262,	Phys 212, MA 264	Phys 212, MA 264	MA 262, (Phys	Phys 315	Phys 317	Phys 318	Phys 308, Phys 318, MA 353				higher	rsy 201	codises	F5y 322	324 or Psy 340	01 Fsy 320			
(Phys 212 or 214)	MA 264	MA 264	212 or 214)	Filys 515	Filys 317	Filys 310	353												1
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Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	available	available	
								×	x										E1- Apply quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world
×	x	x	x	x	x	x	x	×	×	x		ı	ı	ľ	1			ı	Demonstrate quantitative numeracy and facility with the language of mathematics.
×	х	х	х	x	x	x	х	x	x	x x	X			X	х	х			Interpret data sets and communicate those interpretations using visual and other appropriate tools.
×				1 *	×	×		×	x	^	^			^	_ ^	^			Make statistical inferences from data sets.     Extract relevant information from large data sets.
×	x	x	×	×	×	×	x	×	x										Make inferences about natural phenomena using mathematical models.
×	x	x	×	x	x	×	x	×	×	х									<ol> <li>Apply algorithmic approaches and principles of logic (including the distinction between cause/effect and ssociation) to problem solving.</li> </ol>
×	x	x	x	x	x	×	x	×	x						l				Quantify and interpret changes in dynamical systems.  E2- Demonstrate understanding of the process of scientific inquiry, and explain how
		E2- Demons	strate understa	anding of the	process of sci	ientific inquir	y, and explain	×	x										scientific knowledge is discovered and validated.
x x				x x	x x	×	-	×	x x		<b> </b>			X	х	х	Х	x	Develop observational and interpretive skills through hands-on laboratory or field experiences.     Demonstrate ability to measure with precision, accuracy, and safety.
×				x	×	×		×	x										Be able to operate basic laboratory instrumentation for scientific measurement.
								×	×			х		×	х	х	х	x	4. Be able to articulate (in guided inquiry or in project-based research) scientific questions and hypotheses, design experiments, acquire data, perform data analysis, and present results.
								×	×			х		x	х	x	х	×	<ol> <li>Demonstrate the ability to search effectively, to evaluate critically, and to communicate and analyze the scientific literature.</li> </ol>
																			E3- Demonstrate knowledge of basic physical principles and their applications to the
			x	ı	ľ	ı						ı		ı	1	1		ı	understanding of living systems.  1. Demonstrate understanding of mechanics as applied to human and diagnostic systems.
x	x	x										х							<ol><li>Demonstrate knowledge of the principles of electricity and magnetism (e.g., charge, current flow, resistance,</li></ol>
																			capacitance, electrical potential, and magnetic fields).
	х	×	x x																Demonstrate knowledge of wave generation and propagation to the production and transmission of radiation.
			×		х														Demonstrate knowledge of the principles of thermodynamics and fluid motion.     Demonstrate knowledge of principles of quantum mechanics, such as atomic and molecular energy levels, spin,
			-	^	. ^	_ ^	^												and ionizing radiation.  6. Demonstrate knowledge of principles of systems behavior, including input-output relationships and positive and
x			x									Х							negative feedback.
	E4- Demons	strate knowle	edge of basic p	rinciples of ch	nemistry and	some of their	applications t	to the unde	erstanding	of living syste	ems.								E4- Demonstrate knowledge of basic principles of chemistry and some of their applications to the understanding of living systems.
				x	x	x	x												Demonstrate knowledge of atomic structure.
			x									Х							Demonstrate knowledge of molecular structure.     Demonstrate knowledge of molecular interactions.
			x																4. Demonstrate knowledge of thermodynamic criteria for spontaneity of physical processes and chemical reactions
												x							and the relationship of thermodynamics to chemical equilibrium.  5. Demonstrate knowledge of principles of chemical reactivity to explain chemical kinetics and derive possible
				-															reaction mechanisms.
																			<ol> <li>Demonstrate knowledge of the chemistry of carbon-containing compounds relevant to their behavior in an aqueous environment.</li> </ol>
	E5- Demons	strate knowle	edge of how bi	omolecules co	ontribute to t	the structure	and function of	of cells.											E5- Demonstrate knowledge of how biomolecules contribute to the structure and function of cells.
			×																
																			Demonstrate knowledge of the structure, biosynthesis, and degradation of biological macromolecules.
												х	х	x	х	х	l		2. Demonstrate knowledge of the principles of chemical thermodynamics and kinetics that drive biological processes in the context of space (i.e., compartmentation) and time: enzyme-catalyzed reactions and metabolic pathways, regulation, integration, and the chemical logic of sequential reaction steps.
																			Demonstrate knowledge of the biochemical processes that carry out transfer of biological information from DNA,
		-																	and how these processes are regulated.  4. Demonstrate knowledge of the principles of genetics and epigenetics to explain heritable traits in a variety of
																			organisms.
	E6- Apply un	nderstanding	of principles	of how molecu	ular and cell a	assemblies, o	rgans, and org	anisms dev	velop struct	ure and carr	y out function	ın.							E6- Apply understanding of principles of how molecular and cell assemblies, organs, and organisms develop structure and carry out function.
																			Employ knowledge of the general components of prokaryotic and eukaryotic cells, such as molecular, microscopic, macroscopic, and three-dimensional structure, to explain how different components contribute to collabir and organizarial furction.
												х	х						<ol> <li>Demonstrate knowledge of how cell-cell junctions and the extracellular matrix interact to form tissues with specialized function.</li> </ol>
																			Demonstrate knowledge of the mechanisms governing cell division and development of embryos.
			×														İ		<ol> <li>Demonstrate knowledge of the principles of biomechanics and explain structural and functional properties of tissues and organisms.</li> </ol>
	E7- Explain h	how organisr	ms sense and c	ontrol their in	nternal enviro	onment and h	ow they respo	ond to exte	rnal change	2.									E7- Explain how organisms sense and control their internal environment and how they
		1							Ĭ										respond to external change.  1. Exclain maintenance of homeostasis in living greanisms by using principles of mass transport, heat transfer.
											<b> </b>								Explain maintenance of homeostasis in living organisms by using principles of mass transport, heat transfer, energy balance, and feedback and control systems.
			<u></u>	<u></u>		<u> </u>					<u></u>	х	х				<u> </u>		<ol><li>Explain physical and chemical mechanisms used for transduction and information processing in the sensing and integration of internal and environmental signals.</li></ol>
													×						
													and the second						<ol> <li>Explain how living organisms use internal and external defense and avoidance mechanisms to protect themselves from threats, spanning the spectrum from behavioral to structural and immunologic responses.</li> </ol>
	E8- Demons	trate an und	lerstanding of	how the organ	nizing principl	le of evolutio	n by natural se	election ex	plains the d	liversity of lif	fe on earth.								E8- Demonstrate an understanding of how the organizing principle of evolution by natural selection explains the diversity of life on earth.
																			Explain how genomic variability and mutation contribute to the success of populations.
		L			<u> </u>								L	<u> </u>	<u> </u>	<u> </u>	L		<ol><li>Explain how evolutionary mechanisms contribute to change in gene frequencies in populations and to reproductive isolation.</li></ol>