Evolution (Biol 105) - Syllabus Addendum for Prospective Teachers Stearns, S. C. & Hoekstra, R. F. (2005). <i>Evolution. An Introduction</i> 2 nd Edition.				
Oxford University Press				
Chapter	Biology/Life Science Subject Matter Requirements	Academic content standards for kindergarten through grade twelve, adopted by the California State Board of Education		
Ch 2 - Adaptive evolution	3.1a Explain why natural selection acts on the phenotype rather than the genotype of an organism	Science Content Standards for California Public Schools, Grades 9-12, Biology/Life Sciences: 7a Students know why natural selection acts on the phenotype rather than the genotype of an organism		
	3.1b Predict the survival potential of various groups of organisms based on the amount of diversity in their gene pools	Science ContentStandards forCalifornia PublicSchools, Grades 9-12,Biology/Life Sciences:7b Students know whyalleles that are lethalin a homozygousindividual may becarried in aheterozygote and thusmaintained in a genepool; 7c Students knownew mutations areconstantly beinggenerated in a genepool.; 7d Studentsknow variation withina species increases thelikelihood that at leastsome members of aspecies will surviveunder changedenvironmental		

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	3.2b Analyze the effects of	<u>Science Content</u>
	evolutionary patterns on the	<u>Stanaaras jor</u> California Dublic
	diversity of organisms (e.g.,	<u>California Public</u>
	genetic drift, convergent	<u>Schools</u> , Grades 9-12,
	evolution, punctuated	Biology/Life Sciences:
	equilibrium, patterns of	<i>8b</i> Students know <i>a</i>
	selection)	great diversity of
		species increases the
		chance that at least
		some organisms
		survive major changes
		in the environment; 8c
		Students know the
		effects of genetic drift
		on the diversity of
		organisms in a
		population
Ch 3 – Neutral	3.2b Analyze the effects of	Science Content
evolution	evolutionary patterns on the	Standards for
	diversity of organisms (e.g.,	California Public
	genetic drift, convergent	Schools, Grades 9-12,
	evolution, punctuated	Biology/Life Sciences:
	equilibrium, patterns of	<i>8b</i> Students know <i>a</i>
	selection)	great diversity of
	,	species increases the
		chance that at least
		some organisms
		survive major changes
		in the environment: 8c
		Students know the
		effects of genetic drift
		on the diversity of
		on the alversity of
		organisms in a
Ch 1 The genetic	3 1h Predict the survival	Solonaa Content
impact of selection on	s. 10 Fledict the survival	<u>Science Conieni</u>
nipact of selection of	potential of various groups of	<u>Standards jor</u>
populations	organisms based on the amount	California Public
	of diversity in their gene pools	<u>Schools</u> , Grades 9-12,
		Biology/Life Sciences:
		7b Students know why
		alleles that are lethal
		in a homozygous
		individual may be
		carried in a
		heterozygote and thus
		maintained in a gene

		pool; 7c Students know
		new mutations are
		constantly being
		generated in a gene
		pool.; 7d Students
		know variation within
		a species increases the
		likelihood that at least
		some members of a
		spacias will surviva
		species will survive
		under changed
		environmental
		conditions.
	3.2b Analyze the effects of	Science Content
	evolutionary patterns on the	Standards for
	diversity of organisms (e.g.,	California Public
	genetic drift convergent	Schools Grades 9-12
	evolution punctuated	Biology/Life Sciences:
	evolution, punctuated	Students know a
	equinorium, patierns of	ob Students know a
	selection)	great diversity of
		species increases the
		chance that at least
		some organisms
		survive major changes
		in the environment: 8c
		Students know the
		effects of genetic drift
		effects of genetic any
		on the alversity of
		organisms in a
		population
Ch 5 - The origin and	3.1b Predict the survival	Science Content
maintenance of genetic	potential of various groups of	<u>Standards for</u>
variation	organisms based on the amount	California Public
	of diversity in their gene pools	Schools Grades 9-12
	of diversity in their gene pools	Biology/Life Sciences:
		The Students know when
		70 Students know why
		alleles that are lethal
		in a homozygous
		individual may be
		carried in a
		heterozygote and thus
		maintained in a gene
		pool. To Students know
		now mutations are
		new multions are
		constantly being
		generated in a gene

		<i>pool.; 7d</i> Students know variation within
		likelihood that at least
		some members of a
		species will survive
		under changed
		environmental
		conditions.
Ch 7 – The expression	3.1a Explain why natural	Science Content
of variation	selection acts on the phenotype	<u>Standards for</u>
	rather than the genotype of an	<u>California Public</u>
	organism	<u>Schools</u> , Grades 9-12,
		Biology/Life Sciences:
		7a Students know why
		natural selection acts
		on the phenotype
		rather than the
		genotype of an
Ch 12 Speciation	2.20 Distinguish hotwar the	organism Soionoo Contont
Ch 12 - Speciation	5.5a Distinguish between the	<u>Science Conieni</u> Standards for
	organism to its environment and	<u>Siunaaras jor</u> California Public
	the gradual adaptation of a	Schools Grades 9-12
	lineage of organisms through	Biology/Life Sciences
	genetic change	69 * Students know
		how to distinguish
		between the
		accommodation of an
		individual organism to
		its environment and the
		gradual adaptation of a
		lineage of organisms
		through genetic change
Ch 13- Phylogeny and	3.4b Construct a branching	Science Content
systematics	diagram (cladogram) from a	<u>Standards for</u>
	variety of data sources	<u>California Public</u>
	illustrating the phylogeny	<u>Schools</u> , Grades 9-12,
	between organisms of currently	Biology/Life Sciences:
	identified taxonomic groups	<i>Sg</i> Students know <i>how</i>
		several independent
		molecular clocks,
		cuitoratea against each
		with widence from the
		fossil record can help
1	1	1 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0

		to estimate how long
		ago various groups of
		organisms diverged
		evolutionarily from one
		another
Ch 15- Key events in	3.4a Explain the theoretical	Science Content
evoltuion	origins of life on Earth	<u>Standards for</u>
		<u>California Public</u>
		<u>Schools</u> , Grades 9-12,
		Biology/Life Sciences:
		<i>8f</i> * Students know
		how to use comparative
		embryology, DNA or
		protein sequence
		comparisons, and other
		independent sources of
		data to create a
		branching diagram
		(cladogram) that shows
		probable evolutionary
		relationships