

BIOHOPK 43: Biology Core (Plant Biology, Evolution, and Ecology)

Faculty: Denny, Palumbi, Watanabe

Requirements: 2 midterms & final exam, discussion sections

Course description: Introduction to biology. Principles of plant biology (physiology, structure, diversity), principles of evolution (macro and microevolution, population genetics), and ecology (principles governing the distribution and abundance of organisms; population, community, and ecosystem ecology). Equivalent to BIOSCI 43. The course maintains the breadth of information expected of a core course, but places that information in the context of marine biology. It takes full advantage of the Marine Station's proximity to Monterey Bay to offer learning opportunities in both the lab and the field that are not available on main campus. Three lectures per week; enrollment limited to 20 students. (BIOHOPK 44Y is offered concurrently at Hopkins Marine Station; see syllabus).

	Lecture	Reading (<i>LIFE</i> , 8 th ed)
Week 1	The physical environment (<i>Denny</i>) Ecology: patterns in space & time (<i>Watanabe</i>) Adaptation (<i>Palumbi</i>)	LIFE Ch.21, Ch.52 (review Ch.31-33) LIFE 22
Week 2	Ecological physiology & behavioral ecology (<i>Watanabe</i>) Demography & population growth (<i>Watanabe</i>) Population regulation (<i>Watanabe</i>)	LIFE Ch. 53 LIFE Ch. 54.1-54.2 LIFE Ch. 54.3-54.5
Week 3	Plants in water (<i>Denny</i>) Plants in air (<i>Denny</i>) Ecological physiology of plants (<i>Denny</i>)	LIFE Ch.26, 27 LIFE Ch.28, 29 LIFE Ch. 35, 36, 37
Week 4	Population biology, natural selection, and rapid evolution (<i>Palumbi</i>) Speciation (<i>Palumbi</i>) (first midterm) Photosynthesis I (<i>Denny</i>)	EvEx Ch.2, 3, 4 LIFE Ch. 23 LIFE Ch. 8
Week 5	Photosynthesis II (<i>Denny</i>) Plant growth (<i>Denny</i>) Structural biomechanics of plants (<i>Denny</i>)	LIFE Ch. 8 LIFE Ch 37 LIFE Ch. 34
Week 6	Trophic structure & food webs (<i>Watanabe</i>) Community processes I (<i>Watanabe</i>) Community processes II (<i>Watanabe</i>)	LIFE Ch. 55 LIFE Ch. 55 LIFE Ch. 55
Week 7	Phylogeny (<i>Palumbi</i>) Coevolution (<i>Palumbi</i>) (second midterm) Plant reproduction (<i>Denny</i>)	LIFE Ch. 25 LIFE Ch. 39
Week 8	History of Life in 50 minutes (<i>Palumbi</i>) Human evolution (<i>Palumbi</i>) Molecular clocks and developmental evolution (<i>Palumbi</i>)	LIFE Ch. 21 LIFE Ch. 33.5 LIFE Ch. 20
Week 9	<i>Memorial Day</i> Ecosystems (<i>Watanabe</i>) Resources, conservation, & human effects (<i>Watanabe</i>)	Ch.55, 56 Ch.57
Week 10	Altruism, kin selection (<i>Palumbi</i>) Future of evolution: biotechnology (<i>Palumbi</i>)	