
“Evolving timekeepers: the genetics of natural variation in diurnal and seasonal biological rhythms”



The onset and expression of many traits are regulated by diurnal or seasonal fluctuations in the environment in coordination with the circadian clock such that growth, development, and other activities important for fitness occur at times of day or times of year that feature high resource availabilities and reduced abiotic or biotic stress levels. However, because the joint timing of cycling environmental cues changes across the landscape, natural variation in developmental plasticity often evolves as populations adapt to their local habitats. In my talk, I will describe two investigations my lab has been making into the genetics and ecology of natural variation in plant developmental plasticity to oscillating environmental cues. First, I will discuss how our recent studies of solar tracking by sunflowers implicate important roles for the circadian clock and light signaling in the regulation and evolution of this fascinating and complex plant growth behavior. The importance of these mechanisms for determining the eastward orientation and fitness of mature sunflower heads will also be discussed. Second, I will describe our studies exploring how photoperiodic regulation of flowering evolves along elevation gradients in the common monkeyflower, *Mimulus guttatus*, such that populations across the broad geographic range of this species are best able to keep time with their local growing seasons.

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Friday, September 15, 2017

3:00 – 4:00 PM

Science 2, room 109

For further information: www.csufresno.edu/biology

Bio: Dr. Benjamin Blackman is an Assistant Professor in the Dept. of Plant and Microbial Biology at UC, Berkeley. Dr. Blackman earned his B.S. in Biological Sciences at Stanford University and his Ph.D. in 2009 from Indiana University, Bloomington. Subsequently, he completed an NSF Postdoctoral Fellowship in Biology at Duke University and UC, Berkeley prior to serving as a faculty member at the University of Virginia before starting his current position at UC Berkeley in January 2016. Dr. Blackman has authored over 25 publications, and received fellowship and grant support from the NSF.