

title	Hormonal and seasonal effects on reproductive behaviors and neuroplasticity
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department	Biological Sciences
proj_desc	<p>In seasonally breeding organisms, steroid hormone concentrations in the blood fluctuate depending on reproductive condition. These hormones have profound effects on reproductive behaviors and the parts of the brain that control these behaviors. We are specifically interested in effects of steroids on neuroplasticity in these brain regions and use two animal model systems to investigate these changes: bullfrogs and songbirds. Each model system allows students the opportunity to investigate specific questions related to effects of steroids on the brain and behavior. The proposed project will focus on the effects of testosterone on two main levels: (1) cellular mechanisms that regulate neurogenesis in brain regions involved with controlling reproductive behaviors in adult bullfrogs and (2) behavioral outcomes as a result of increased testosterone in adult male House Finches.</p> <p>To investigate the effects of testosterone on neurogenesis in brain regions involved with reproduction, we will capture adult male bullfrogs from the wild, manipulate plasma testosterone levels, and quantify changes in neurogenesis in the brain regions involved with reproduction and aggression. This project will begin in the spring.</p> <p>To investigate seasonal changes in specific behaviors relevant to reproduction, we will quantify changes in singing behavior and song quality in free-living House Finches and will relate those changes to reproductive condition and circulating hormone concentrations. This project will begin in January 2008 and is part of an on-going, long-term project in the lab. In other related projects, we will address specific questions related to neuroplasticity in the brain regions that control singing behavior in adult male House Finches.</p> <p>I currently have two honors students interested in participating in this research: Bryan Brandon and Katie Berger.</p>
inter_desc	This project will be of interest to students in animal science, bioengineering, biology and psychology and will provide opportunities for collaboration between these departments. We will utilize techniques from the cellular and molecular level to the behavioral level to investigate mechanisms of steroid actions in the brain and how those changes in the brain affect relevant behaviors.
links	
students	2
majors	ASCI, BIO, ENGR, BMED, KINE, PSY
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