

## Senior Thesis and Independent Study Projects in the Bavis Lab

### A. Senior Thesis

#### 2016-17

Abigail Bierman (Interdisciplinary Studies), "Effect of multiple species' songs playback on song learning in the Carolina Wren in a rehabilitation setting"

Andrew Lachance (Biological Chemistry), "Recovery of the hypoxic ventilatory response following hyperoxia-induced plasticity in neonatal rats"

Julia Smachlo (Biological Chemistry), "Impact of chronic hypoxia on the developing respiratory control system in rats"

Monata Song (Biology), "Age dependent pattern of hypoxic ventilatory and metabolic responses in Japanese quail (*Coturnix japonica*) chicks"

Sophia Wagener (Biology), "Sex-specific genes and hormones impact risk for cardiovascular disease and treatment efficacy"

#### 2015-16

Jesse Butler (Biology), "Effects of developmental intermittent hypoxia and hyperoxia on the hypoxic ventilatory response of adult rats"

Tanner Dirstine (Biology), "Does mild hyperoxia induce phenotypic plasticity in the neonatal respiratory control system?"

Carolyn MacDonald (Biology), "The effects of prenatal hyperoxia on the development of the hypoxic ventilatory response in rats"

Caitlin O'Toole (Neuroscience), "Effects of prenatal hyperoxia on the development of carotid body chemoresponsiveness in rats"

#### 2014-15

Kendra Asklof (Biological Chemistry), "Effect of developmental hyperoxia on lung size and cytokine expression"

Kevin Deng (Biology), "Critical period for chronic intermittent hyperoxia-induced plasticity"

Song Kim (Biology), "The effects of 7,8-dihydroxyflavone (7,8-DHF) on hyperoxia-induced respiratory plasticity"

Reed Lewallen (Biology), "Impact of hyperoxia on apnea frequency and duration in neonatal rats"

Alexandra Millström (Biological Chemistry), "Short and long term effects of intermittent hypercapnic hypoxia and intermittent hyperoxia on respiratory control development in rats"

### **2013-14**

Halward Blegen (Biological Chemistry), "Effects of chronic hyperoxia and the administration of caffeine on the hypoxic ventilatory response of neonatal rats"

Sarah Logan (Biology), "Postnatal intermittent hyperoxia and developmental plasticity in normoxic ventilation"

### **2012-13**

Kate DeAngelis (Biological Chemistry), "Inhibitory effects of imatinib on the PDGF- $\beta$  pathway and developmental hyperoxia on the hypoxic ventilatory response"

Corey Hill (Neuroscience), "Plasticity in the central control mechanism of the biphasic ventilatory response following developmental hyperoxia: effects of the P2X receptor antagonist PPADS"

Terry Horowitz (Biology), "Effects of exposure to chronic hyperoxia on the maturation of the NMDA receptor pathway in the caudal NTS of neonatal rats"

Ryan March (Biology), "Effects of GABA<sub>B</sub> receptor blockade on the respiratory response to hypoxia in neonatal rats exposed to developmental hyperoxia"

Lisa Reedich (Biological Chemistry), "Effects of hyperoxia on the maturation of the nitric oxide signaling pathway and development of the hypoxic ventilatory response"

### **2011-12**

Allison Di Salvo (Biology), "Effects of developmental hyperoxia on spiracle opening in *Drosophila melanogaster*"

Sarah Fallon (Biological Chemistry), "Carotid body growth and the critical period for hyperoxia-induced developmental plasticity in rats"

Sam Grandgeorge (Biology), "Carotid body inhibition reveals plasticity in central ventilatory control of the biphasic response to hypoxia in neonatal rats reared in hyperoxia"

Luke Harmeling (Biology), "Effects of chronic hyperoxia on the metabolism of neonatal rats"

Giang Nguyen (Biology), "Effect of chronic hyperoxia on metabolism of neonatal rats"

Kristina Tobin (Biology), "Effects of developmental intermittent hyperoxia on the hypoxic ventilatory response in rats"

## **2010-11**

Diane Brackett (Neuroscience), "Role of tyrosine kinase B (TrkB) signaling in the regulation of carotid body development by hyperoxia"

Eliza van Heerden (Biology), "Cardiorespiratory effects of chronic hyperoxia in neonatal rats"

## **2009-10**

Ryan Langerdorf (Biology), "Modeling diving patterns of foraging Crabeater Seals"

Nelish Pradhan (Biology), "Effects of hyperoxia on carotid body oxygen sensitivity in neonatal rats"

Jeffrey Roeser (Biology), "24 hour hyperoxia augments the hypoxic ventilatory response in P8 neonatal rats and this is not prevented by SOD supplementation"

Julia Wilson (Biology), "The effects of perinatal hyperoxia on the expression of neurotrophic factor receptors in the rat carotid body"

## **2008-09**

Thomas Broge (Biology), "Effects of hyperoxia on glomus cells in the carotid body of the postnatal rat"

Kristen Meyers (Biology), "Exercise performance in moderate hypoxia in rats with impaired carotid bodies"

Adam Ratner (Biology), "Assessing learning and memory of a color discrimination in zebrafish (*Danio rerio*)"

Kristen Young (Biology), "Effects of perinatal hyperoxia on the hypoxic ventilatory responses in adult mice"

Michael Watson (Biology), "The aural study of nocturnal migration over a fine spatial scale"

## **2007-08**

Dylan Atchley (Biology), "Thermoregulatory and metabolic responses of Japanese quail to hypoxia and hypercapnia"

Kyle Dunmire (Biology), "Expression of cell cycle and apoptotic regulators in neonatal and adult rats following hyperoxia"

Laura Godfrey (Biology), "Seasonal androgen responsiveness (AR) in relation to temperature variation in bird species of different latitudes and breeding seasons"

Shawna-Kaye Lester (Biological Chemistry), "RNA interference in asthma care"

Zach Risler (Biology), "Effect of acute hyperoxia on the hypoxic ventilatory response in adult rats and the role of reactive oxygen species"

Mallory Rosenblatt (Biology), "Effects of prenatal hypoxia on the hypoxic ventilatory response of Japanese quail"

Ariane Waldstein (Biology), "Climate change and its effects on spring avian phenology"

### **2006-07**

Taegan McMahon (Biology), "Negative effects of acidic water on the larval development of *Epipedobates tricolor*, the Phantasmal poison dart frog (Anura: Dendrobatidae)"

Brooke Miller (Biology), "Exposure to prenatal hypoxia elevates the hypoxic ventilatory response of Japanese quail while postnatal exposure does not"

Zaw Min Oo (Biology), "Hypoxia-induced hemoglobin production in *Daphnia magna* suggests within-species genetic variation"

Samantha Piro (Biology), "Effects of perinatal hyperoxia on ventilation and carotid body growth in rats"

### **2005-06**

Lissa Moses (Biology), "The Q<sub>10</sub> effect at two periods of the day/night cycle for the Northern Leopard Frog, *Rana pipiens*"

Kate Russell (Biological Chemistry), "Respiratory plasticity after intermittent and sustained hypercapnia in newborn and adult rats"

Julia Simons (Biology), "Attenuated hypoxic ventilatory responses in quail after chronic developmental hyperoxia"

Andrew Stowe (Biology, Honors), "Ecology of the Nelson's Sharp-tailed Sparrow (*Ammodramus nelsoni*) and the Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*): Determining vocal repertoires and assessing effects of social cues on trends in singing behavior"

Jeremiah Vernon (Biology), "Chronic exposure to hypercapnia decreases ventilatory sensitivity to carbon dioxide in adult *Coturnix japonica*"

### **2004-05**

Leah Boyer (Biological Chemistry), "Heat shock protein expression during hypercapnia"

Karl Dietrich (Biology), "Intermittent hypercapnia elicits long-term facilitation in unanesthetized adult rats"

Jill Murawski (Biology), "Seasonal changes in amino acid content in the freeze-tolerant bivalve *Mytilus edulis*"

Kari M. Ording (Biology), "Effects of perinatal hypercapnia on the development of ventilatory chemoreflexes of rats"

Jessica Otis (Biology), "Hyperoxia-induced impairment of the hypoxic ventilatory response and its interaction with postnatal hypercapnia and the response to hypoglycemia in rats"

## **B. Independent Study**

### **2017**

Ethan Benevides, "Adult rats exposed to chronic hypoxia do not show evidence of blunted hypoxic ventilatory response"

### **2015**

Song Maria Kim, "Inflammation and Plasticity"

### **2014**

Sarah Logan, "Scientific Writing"

### **2009**

Michael Watson, "Pine Siskin Migration"

### **2005**

Jess Perrie, "How does farm management affect transmission of Johne's Disease?"

### **2004**

Andrew Stowe, "Bates-Morse Mountain Conservation Area Bird Monitoring Program, Phippsburg, Maine"