





2019 Student Competition Winners

All Sections 2

First Place	Second Place
<p>Carter Wolff Mississippi State University</p> <p>Sonic weaponry and nutritional warfare against the rangeland pest <i>Melanoplus sanguinipes</i></p>	<p>Adrienne Antonsen North Dakota State University</p> <p>Sweet nectar: Differential floral use among butterflies of the northern Great Plains</p>


3-Minute Presentations



Graduate 10-Minute Papers


All Sections 1

First Place	Second Place
<p>Kelly Willemsens University of Nebraska</p> <p>How can life adapt to global warming and pollution? The answer may lie in the thermal springs of Yellowstone National Park</p>	<p>Annie Krueger University of Nebraska</p> <p>Monarchs on the farm: How milkweed, insecticides, and potassium affect detoxification in the monarch butterfly</p>



MUVE, Disease Transmission

First Place	Second Place
<p>Hannah Tiffin Pennsylvania State University</p> <p>Small but mighty: Evaluation of sarcoptic mange caused by <i>Sarcoptes scabiei</i> in the American black bear (<i>Ursus americanus</i>) population in Pennsylvania</p>	<p>Dean Taylor University of Idaho</p> <p>Larval exposure to abscisic acid alters adult female <i>Anopheles stephensi</i> life history traits</p>



MUVE, Diversity

First Place	Second Place
<p>Mackenzie Tietjen Texas A&M University</p> <p>Assessing host-associated differentiation in <i>Dermacentor variabilis</i> (Acari: Ixodidae)</p>	<p>Catherine Dean University of Southern Mississippi</p> <p>Effects of ecological stoichiometry on spatial distribution patterns and competition of <i>Aedes</i> species in New Orleans, Louisiana</p>



MUVE, Insecticide Efficacy and Resistance 1

First Place	Second Place
<p>Jamora Hamilton North Carolina State University</p> <p>Effects of ingesting the insect growth regulator novaluron on German cockroach (<i>Blattella germanica</i>) survivorship, feeding behavior, and reproduction</p>	<p>Zachery Wolfe Purdue University</p> <p>The relationship between insecticide resistance and the gut microbiome of <i>Blattella germanica</i></p>



MUVE, Ecology and Behavior 1

First Place	Second Place
<p>Constance Lin Texas A&M University</p> <p>Raising the "anty" in decomposition ecology: Effects of vertebrate carrion on fire ant colony performance</p>	<p>Samuel Curtis California State University</p> <p>Assessment of host age preference by the pupal parasitoid <i>Spalangia cameroni</i> (Hymenoptera: Pteromalidae)</p>



MUVE, Insecticide Efficacy and Resistance 2

First Place	Second Place
<p>Kristina Lopez University of Wisconsin</p> <p>Effects of ULV spraying on <i>Culex</i> population abundance and age structure in a residential area</p>	<p>Zachary Kaplan University of Florida</p> <p>A survey of pesticide resistance and its mechanisms in <i>Amblyomma americanum</i></p>



MUVE, Ecology and Behavior 2

First Place	Second Place
<p>R. Butler University of Tennessee</p> <p>A study of ecological relationships of ectoparasites on rodents in western Tennessee</p>	<p>Austin Goldsmith University of Arkansas</p> <p>An ecological survey of native Arkansas entomopathogenic fungi and their virulence to <i>Amblyomma americanum</i> ticks</p>



MUVE, Life History

First Place	Second Place
<p>Johnalyn Gordon University of Florida</p> <p>Relative contributions of host and symbiont to heterosis in <i>Coptotermes</i> hybrids (Isoptera: Rhinotermitidae)</p>	<p>Mark Janowiecki Texas A&M University</p> <p>Seasonality and spatial distribution of <i>Reticulitermes</i> spp. (Blattodea: Rhinotermitidae)</p>



MUVE, Molecular and Cellular Biology

First Place	Second Place
<p>Joseph Velenovski University of Florida</p> <p>Quantitative changes in symbiotic parasitoids within <i>Coptotermes gestroi</i> (Wasmann) and <i>Coptotermes formosanus</i> Shiraki (Blattodea: Rhinotermitidae) kings and queens during incipient colony development</p>	<p>Kaylee Arnold University of Georgia</p> <p>The gut microbial diversity of a Chagas disease vector varies across habitat type, region, and infection status in central Panama</p>



PBT, Molecular and Cellular Biology 1

First Place	Second Place
<p>Yan Yan Vanderbilt University</p> <p>Uncovering the expression profile of peritrostal hemocytes in the mosquito <i>Anopheles gambiae</i></p>	<p>Emily Nadeau University of Kentucky</p> <p>Transcriptional regulation of reproductive diapause in the convergent lady beetle</p>



PBT, Biology

First Place	Second Place
<p>Priyanka Mittapelly Ohio State University</p> <p>Metatranscriptome analysis reveals the importance of host-symbiont interactions for nutrient-provisioning role in the brown marmorated stink bug</p>	<p>Makani Fisher Purdue University</p> <p>The antipredatory role of sequestered lichen metabolites in the lichen-feeding tiger moths (Erebidae: Arctiinae: Lithosini)</p>



PBT, Molecular and Cellular Biology 2

First Place	Second Place
<p>Molly Darlington University of Nebraska</p> <p>The role of scavenger receptors in double-stranded RNA uptake in the western corn rootworm</p>	<p>Dylan Shropshire Vanderbilt University</p> <p>Identifying and characterizing phage genes that control arthropod reproduction</p>



PBT, Insecticide Resistance

First Place	Second Place
<p>José Santiago Texas A&M University</p> <p>Monitoring the susceptibility of <i>Helicoverpa zea</i> (Lepidoptera: Noctuidae) populations collected in Texas to Cry1Ac, Cry2Ab2 and Vip3Aa using F2 screens</p>	<p>Mei Luo Michigan State University</p> <p>Evolution of insect metallothioneins</p>



PBT, Molecular and Cellular Biology 3

First Place	Second Place
<p>Kyah Featherston Kansas State University</p> <p>Characterizing exosome cargoes from a <i>Diabrotica</i> cell line</p>	<p>Na Xie Virginia Polytechnic Institute and State University</p> <p>Assessing the potential of insect muscarinic acetylcholine receptors as an insecticide target</p>



PBT, Pollinator Biology and Ecology

First Place	Second Place
<p>Erin Treanore Pennsylvania State University</p> <p>Bumble bee (<i>Bombus impatiens</i>) queens' diapause survival is affected by age, mass, and post-eclosion nutrient acquisition</p>	<p>Hannah Stewart Pennsylvania State University</p> <p>The cost of immune responses to thermoregulatory capacity in <i>Bombus impatiens</i></p>



P-IE, Apiculture

First Place	Second Place
<p>Kelly Kulhanek University of Maryland</p> <p>Improved honey bee (<i>Apis mellifera</i>) colony health and reduced mortality result from three-year field trial of survey derived best management practices</p>	<p>Harper McMinn-Sauder Ohio State University</p> <p>Measuring honey bee utilization of Conservation Reserve Program (CRP) pollinator plantings using DNA metabarcoding</p>



PBT, Toxicity 1

First Place	Second Place
<p>Colin Wong Iowa State University</p> <p>Search for natural personal repellents for the tick, <i>Dermacentor variabilis</i></p>	<p>Kirsten Pearsons Pennsylvania State University</p> <p>Toxicity of neonicotinoids and pyrethroids to non-target soil invertebrates</p>



P-IE, Behavior

First Place	Second Place
<p>Emily Justus Ohio State University</p> <p>Carrot weevils utilize volatile cues dominated by terpenes in host location</p>	<p>Brianna Trejo University of Central Arkansas</p> <p>Energy allocation patterns in a girdling and a non-girdling caterpillar</p>



PBT, Toxicity 2

First Place	Second Place
<p>Anna Tatarko University of Nevada</p> <p>Impacts of neonicotinoid pesticides on insect olfactory processing</p>	<p>Maura Hall Iowa State University</p> <p>Quantification of neonicotinoid residues in pollen and nectar</p>



P-IE, Biocontrol of Insects 1

First Place	Second Place
<p>Eric Middleton University of Minnesota</p> <p>Flowers vs. Colorado potato beetle: Using perennial wildflower plantings to enhance conservation biological control</p>	<p>Christopher McCullough Virginia Polytechnic Institute and State University</p> <p>Diverse landscapes increase marketable yields of four crops in the Mid-Atlantic</p>



P-IE, Biocontrol of Insects 2

First Place	Second Place
<p>Crys Wright Texas A&M University</p> <p>Testing for fecundity compensation in parasitized sugarcane aphids</p>	<p>Blake Elkins Texas A&M University</p> <p>Species complex and population variation of natural enemies of sugarcane aphid across gradients of landscape composition and structure</p>



P-IE, Biocontrol of Plants

First Place	Second Place
<p>Jaewon Kim West Virginia University</p> <p>Development of a novel aerial-release system for <i>Rhinoncomimus latipes</i> (Coleoptera: Curculionidae), the biological control agent for mile-a-minute weed</p>	<p>Kristen Bowers University of Florida</p> <p>Evaluating the impact of two herbivores on the invasive Brazilian peppertree, <i>Schinus terebinthifolia</i></p>



P-IE, Biocontrol of Insects 3

First Place	Second Place
<p>Desireè Wickwar Utah State University</p> <p>Understanding non-consumptive effects of predators on bluegrass billbug (<i>Sphenophorus parvulus</i>) behavior: Implications for suppression in turfgrass</p>	<p>Abigail Kropf Iowa State University</p> <p>Quantifying the susceptibility of western corn rootworm larvae to entomopathogenic fungi</p>



P-IE, Climate Change

First Place	Second Place
<p>Jessica Kasman University of Missouri</p> <p>Say yes to the host: Examining consequences of drought for aphid and parasitoid wasp interactions</p>	<p>Cory Speights Mississippi State University</p> <p>Warming impacts non-consumptive predator-prey interactions</p>



P-IE, Chemical Ecology

First Place	Second Place
<p>Eric Scott Tufts University</p> <p>Non-linear effects of tea green leafhopper (<i>Empoasca onukii</i>) density on tea (<i>Camellia sinensis</i>) secondary metabolites and implications for tea quality</p>	<p>Anne Jones Pennsylvania State University</p> <p>Phylogenetic analysis of the mechanisms for altering green leaf volatile (GLV) emissions in herbivorous Lepidoptera</p>



P-IE, Ecology 1

First Place	Second Place
<p>Erica Moretti Cornell University</p> <p>Influence of abiotic factors on onion maggot adult population dynamics and larval damage in commercial onion fields</p>	<p>Julie Davis Cornell University</p> <p>Species interactions along a domestication gradient: Response of bees, leaf herbivores and predators to human-mediated selection</p>



P-IE, Ecology 2

First Place	Second Place
<p>Christopher Riley Ohio State University</p> <p>Does tree species origin or landscape context explain patterns of herbivory in an inner-city urban forest?</p>	<p>Yvan Delgado de la Flor Ohio State University</p> <p>Rich and abundant spider communities result from enhanced dietary niche breadth and reduced overlap in a post-industrial shrinking city</p>



P-IE, Host Plant Resistance

First Place	Second Place
<p>Hillary Fischer University of Arkansas</p> <p>Reactive oxygen species in plant defense against aphids</p>	<p>Elizabeth Rowen Pennsylvania State University</p> <p>Getting more Zs: Can zinc fertilizer boost corn resistance to chewing herbivores?</p>



P-IE, Ecology 3

First Place	Second Place
<p>Madison Sankovitz University of California, Riverside</p> <p>Altitudinal patterns of Formica ant nest soil properties in California mountains</p>	<p>Nadine Schutte North-West University, South Africa</p> <p>Bt soybean fields have no adverse effects on non-target arthropod communities in South Africa</p>



P-IE, Invasive Species

First Place	Second Place
<p>Whitney Hadden Virginia Polytechnic Institute and State University</p> <p>Deciphering the seasonal host-use patterns of <i>Halymorpha halys</i> on select deciduous plants</p>	<p>James Hepler Washington State University</p> <p>Suitability of the arid shrub-steppe flora for brown marmorated stink bug feeding and development</p>



P-IE, Forests

First Place	Second Place
<p>Max Ragazzino Virginia Polytechnic Institute and State University</p> <p>Effects of novel host plant substrate on host utilization of two larval parasitoids of emerald ash borer</p>	<p>Dora Mwangola University of Minnesota</p> <p>Protecting trees against emerald ash borer: What does it take to be a good neighbour?</p>



P-IE, IPM Field Crops 1

First Place	Second Place
<p>John McCulloch Iowa State University</p> <p>Evaluating the use of a soil-applied insecticide as a pyramid with Bt corn for western corn rootworm management</p>	<p>Ashley Dean Iowa State University</p> <p>Optimizing profit for farmers managing soybean aphid</p>



P-IE, IPM Field Crops 2

First Place	Second Place
<p>Marcelo Dimase Louisiana State University</p> <p>Performance of Bt-susceptible and heterozygous dual-gene resistant genotypes of the fall armyworm in seed blends of non-Bt and pyramided Bt corn</p>	<p>Russell Godbold Mississippi State University</p> <p><i>Helicoverpa zea</i> damage and behavior in Bt cotton</p>



P-IE, IPM Field Crops 5

First Place	Second Place
<p>Dominique Ebbenga University of Minnesota</p> <p>Japanese beetle overwintering survival and phenology: Implications for developing a forecast</p>	<p>Hanna Kalh University of California, Davis</p> <p>Characteristics of European earwig (<i>Forficula auricularia</i>) damage on citrus fruits</p>



P-IE, IPM Field Crops 3

First Place	Second Place
<p>Krystal Ashman University of Florida</p> <p>Identification and management of damaging woodboring beetles in blueberry</p>	<p>Megan Mulcahy Louisiana State University</p> <p>Assessing the feasibility of using remote sensing for precision agriculture in insecticidal seed treated rice</p>



P-IE, IPM Horticulture

First Place	Second Place
<p>Margaret Lewis University of Maryland</p> <p>Optimizing carrier water volume for improved management of spotted-wing drosophila in brambles</p>	<p>Matthew Gullickson University of Minnesota</p> <p>Deterrent effects of essential oils on spotted-wing drosophila (<i>Drosophila suzukii</i>): Implications for organic management</p>



P-IE, IPM Field Crops 4

First Place	Second Place
<p>Matthew Longmire University of Tennessee</p> <p>Dual-cropping soybean systems: Impacts on pest and beneficial arthropods in Tennessee</p>	<p>Gabriela Inveninato Carmona University of Nebraska</p> <p>Influence of cover crop management tactics on arthropods in a cover crop to corn system</p>



P-IE, Molecular and Cell Biology / Novel Tools

First Place	Second Place
<p>Adrian Pekarcik Ohio State University</p> <p>Identifying single nucleotide polymorphisms (SNPs) for the Asiatic garden beetle, <i>Melolontha castaneae</i> Arrow, using a RAD-seq approach</p>	<p>Bethany Kyre University of Kentucky</p> <p>Congeneric effect of RNA interference leads to gene silencing in multiple <i>Dendroctonus</i> species</p>



P-IE, Pollination 1

First Place	Second Place
<p>Sarah Scott Ohio State University</p> <p>How life in a contaminated landscape affects the fitness of the common eastern bumble bee, <i>Bombus impatiens</i></p>	<p>Greta Dupuis Washington State University</p> <p>Soil temperature modeling to predict emergence of the alkali bee</p>



P-IE, Resistance Management

First Place	Second Place
<p>Jordan Reinders University of Nebraska</p> <p>Effects of larval or adult SmartStax PRO® dietary exposure on western corn rootworm (Coleoptera: Chrysomelidae) life history traits</p>	<p>Seth Dorman Virginia Polytechnic Institute and State University</p> <p>Insecticide resistance monitoring and resistance mechanisms of an important insect pest in Southeastern cotton: The tarnished plant bug</p>



P-IE, Pollination 2

First Place	Second Place
<p>Michelle Boone University of Minnesota</p> <p>Which habitat types are important for bumble bees?</p>	<p>Katie LePlante University of Missouri</p> <p>Monarch butterfly (<i>Danaus plexippus</i>) host plant selection and the effects of aphid competitors</p>



P-IE, Vectors 1

First Place	Second Place
<p>Benjamin Lee Washington State University</p> <p>Predation risk and conspecific alarm cues affect pea aphid vector competence for Pea Enation Mosaic Virus during complex multitrophic interactions</p>	<p>Jaimie Kenney University of California, Riverside</p> <p>A plant defense elicitor disrupts transmission-enhancing vector behavior</p>



P-IE, Pollination 3

First Place	Second Place
<p>Rachel McLaughlin Pennsylvania State University</p> <p>Survey of potential pollinators of black cherry</p>	<p>Caroline Murray Iowa State University</p> <p>Do small patches of prairie conserve pollinators, including monarch butterfly, in an agricultural setting?</p>



P-IE, Vectors 2

First Place	Second Place
<p>Matthew Boucher Cornell University</p> <p>Effects of insect density and pest pressure on transmission of <i>Erwinia amylovora</i> by <i>Delia platura</i></p>	<p>Victoria Lason University of Wisconsin</p> <p>Intracellular penetration by <i>Macrosteles quadrilineatus</i> enhances <i>Salmonella enterica</i> persistence in the phyllosphere</p>



SysEB, Behavior

First Place	Second Place
<p>Anna Noreuil University of Maryland</p> <p>Genetic ancestry and host preferences of <i>Culex pipiens</i> populations collected from above- and below-ground breeding sites</p>	<p>Andrews Burchill Arizona State University</p> <p>Cooperatively transporting massive prey up vertical surfaces in the weaver ant <i>Oecophylla smaragdina</i></p>



SysEB, Evolution 2

First Place	Second Place
<p>Jennifer Giron University of Kansas</p> <p>Back to land: Ecological shifts and morphological adaptations in the water scavenger beetle subfamily Acidocerinae (Coleoptera: Hydrophilidae)</p>	<p>Kendall King Ohio State University</p> <p>Exploring mechanisms of parasitoid diversification through the lens of chemosensory speciation</p>



SysEB, Biogeography and Disturbance

First Place	Second Place
<p>Evan Waite Wichita State University</p> <p>Differential responses of grassland ground beetle (Coleoptera: Carabidae) communities to Conservation Reserve Program management practices</p>	<p>Sheryl Hosler University of Illinois</p> <p>Effects of restoration management techniques on dung beetle functional community in tallgrass prairie</p>



SysEB, Morphology and Phylogeny

First Place	Second Place
<p>Megan Wilson State University of New Jersey</p> <p>Mandible morphology as a reflection of diet in basal termite lineages</p>	<p>Melissa Starkie Queensland University of Technology</p> <p>The evolution and biogeography of Australian Dacini fruit flies (Diptera: Tephritidae)</p>



SysEB, Evolution 1

First Place	Second Place
<p>Christine Sosiak New Jersey Institute of Technology</p> <p>Exploring ancient hellscapes: Comparing morphology of Cretaceous <i>hoidomyrmecines</i> and extant ants to predict early ant ecological niches</p>	<p>Callum Kingwell Cornell University</p> <p>Evolutionary origins of social insect queen pheromones: Effects of condition-dependent indices of fecundity on the totipotent worker caste of a socially flexible bee</p>



SysEB, Phylogenetics 1

First Place	Second Place
<p>Rachel Skinner University of Illinois</p> <p>Auchenorrhynchan (Insecta: Hemiptera) phylogenetics and biogeography: New insights from next-generation sequencing</p>	<p>Melissa Sisson University of North Dakota</p> <p>Using phylogenetics to understand the evolution of wing patterns in mimetic tiger moths (Lepidoptera: Erebidae)</p>



SysEB, Phylogenetics 2

First Place	Second Place
<p>Trevor Sless Cornell University</p> <p>Ultraconserved elements reveal the phylogeny of the largest clade of cleptoparasitic bees (Apidae: Nomadinae)</p>	<p>Jill Oberski University of California, Davis</p> <p>Phylogeny and biogeography of <i>Dorymyrmex</i>, a New World amphitropical disjunct</p>



SysEB, Taxonomy and Diversity

First Place	Second Place
<p>Jessica Awad University of Florida</p> <p>Building a diagnostic framework for the genus <i>Synopeus</i> (Hymenoptera: Platygasteridae) using reared specimens from Papua New Guinea</p>	<p>Sangil Kim Harvard University</p> <p>Target enrichment adds values to history: DNA mining from museum specimens</p>

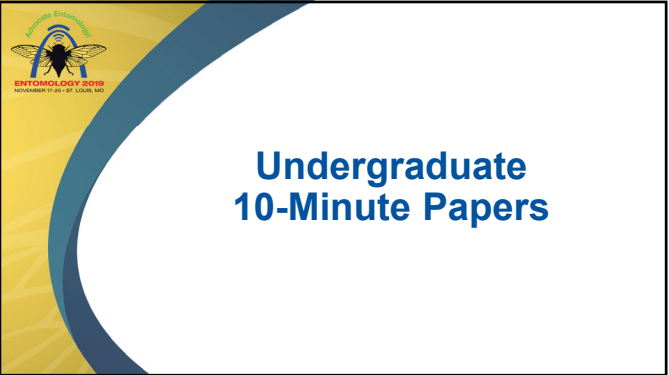


SysEB, Phylogenetics 3

First Place	Second Place
<p>Cristian Beza-Beza University of Memphis</p> <p>Diversification in the Mesoamerican sky-islands: Molecular phylogenetics and evolution of the New World bess beetles (Coleoptera: Passalidae: Proculini)</p>	<p>Stephen Baca University of Kansas</p> <p>Improving the targeted capture of Ultraconserved Elements for phylogenetic inference: A case study using the water beetle family Noteridae (Coleoptera)</p>



Undergraduate 10-Minute Papers



SysEB, Symbionts

First Place	Second Place
<p>Daniel Bruzese University of Notre Dame</p> <p>Wolbachia strain diversity and cytoplasmic incompatibility in western (<i>Rhagoletis indifferens</i>) and eastern cherry fruit flies (<i>Rhagoletis cingulata</i>)</p>	<p>Laura Rosenwald University of Kentucky</p> <p>Geographic diversity of endosymbiotic infection in a linyphiid spider</p>



PBT and MUVE 1

First Place	Second Place
<p>Ahmed Mohamed University of Southern Mississippi</p> <p>Functional role of tick α-D-galactosidase in carbohydrate metabolism and red meat allergy</p>	<p>Joseph Powers Vanderbilt University</p> <p>An infection acquired early in adulthood impacts the ability of a mosquito to fight an infection acquired later in life</p>



PBT and MUVE 2

First Place	Second Place
<p>Madeline Sudnick Ohio State University</p> <p>Identification of oviposition resources by bird blow flies (<i>Protocalliphora</i> spp.)</p>	<p>Victoria Pickens Kansas State University</p> <p>It's electrifying! Electropetrography (EPG) as a measurement of <i>Aedes aegypti</i> probing activities on different hosts</p>



SysEB 2

First Place	Second Place
<p>Colin Jensen Brigham Young University</p> <p>Helikopter models: Ready for takeoff?</p>	<p>Drew Little Texas A&M University</p> <p>Analysis of stimulus in the phase-related behavior of <i>Schistocerca piceifrons</i></p>



P-IE

First Place	Second Place
<p>Evelyn Blakeman Ohio University</p> <p>Are flies 'pollen' their weight? Data mining social media for information on fly (Diptera) pollinators</p>	<p>Carolina Wilson Texas A&M University</p> <p>Effects of fungal endophyte treatment and herbivory on extra floral nectar carbohydrate composition in cotton</p>



Graduate Posters

SysEB 1

First Place	Second Place
<p>Melissa Sandoval University of California, Berkeley</p> <p>Are these parasitic wasps as old as we think? Phylogeny, divergence dating, and historical biogeography of Labeninae (Hymenoptera: Ichneumonidae)</p>	<p>Chloe Jelley New Jersey Institute of Technology</p> <p>Ecological variation in ant eyes</p>



MUVE 1

First Place	Second Place
<p>Xinmi Zhang University of California, Riverside</p> <p>Culicoides diversity in the Southern California desert canyon</p>	<p>Xiaodi Wang University of Florida</p> <p>Studies of vector competence for Zika virus in <i>Aedes aegypti</i> populations from Florida</p>



MUVE 2

First Place	Second Place
<p>Andrea Salazar Oklahoma State University</p> <p>Detection and discrimination of three <i>Anaplasma</i> species infecting livestock using recombinase polymerase amplification (RPA)</p>	<p>Jessica Brown Pennsylvania State University</p> <p>Differential tick burdens on small mammal host species in central Pennsylvania</p>



PBT 2

First Place	Second Place
<p>John Mahas Auburn University</p> <p>Susceptibility of <i>Aphis gossypii</i> to imidacloprid in Alabama</p>	<p>Erika Bueno University of Vermont</p> <p>Evaluating cross-tolerance to stress in Colorado potato beetle, <i>Leptinotarsa decemlineata</i></p>



MUVE 3

First Place	Second Place
<p>Megan Asche Washington State University</p> <p>Associative learning of food odors by <i>Polistes dominula</i> (Christ), <i>P. exclamans</i> Viereck, and <i>P. metricus</i> Say (Hymenoptera: Vespidae)</p>	<p>Paula Castillo Louisiana State University</p> <p>Morphometric analysis of the antennae and caste-specific characterization of antennal sensilla in the Formosan subterranean termite, <i>Coptotermes formosanus</i></p>



PBT 3

First Place	Second Place
<p>Annie Krueger University of Nebraska</p> <p>Toxicology of a pyrethroid insecticide in the monarch butterfly (<i>Danaus plexippus</i>) and interactions with host plant defense chemicals and chemical fertilizers</p>	<p>Yunho Yang Seoul National University, South Korea</p> <p>Chemical composition, insecticidal and repellent activity of essential oils against the maize weevil, <i>Sitophilus zeamais</i> Motschulsky</p>



PBT 1

First Place	Second Place
<p>Yaoyu Jiao University of Kentucky</p> <p>LRPPRC is required for wing development in red flour beetle, <i>Tribolium castaneum</i></p>	<p>Nicole Gutzmann North Carolina State University</p> <p>Building a better beetle: Improving CRISPR/Cas9 tools in coleopteran model <i>Tribolium castaneum</i></p>



PBT 4

First Place	Second Place
<p>Alexandria Payne Texas A&M University</p> <p>Interspecies virus transmission between ants and honey bees (<i>Apis mellifera</i>)</p>	<p>Rikki Walter North Dakota State University</p> <p>Effects of caste on critical PO2 and flight metabolic rate in the bumble bee, <i>Bombus impatiens</i></p>



P-IE, Biology Control

First Place	Second Place
<p>Binita Shrestha University of Florida</p> <p>Impact of natural enemies on populations of Diaphorina citri under various orchard management practices in Florida citrus</p>	<p>John Grunseich Texas A&M University</p> <p>A specialist herbivore uses chemical cues from host-plant roots to avoid induced defenses and elevated predation risk</p>



P-IE, IPM 1

First Place	Second Place
<p>William Pitt Colorado State University</p> <p>Feeding location alters behavior and performance of soybean aphids by modulating plant nutrients</p>	<p>Timothy Dang University of Nebraska</p> <p>Efficacy of aerial insecticide applications targeting adult western corn rootworms in Nebraska</p>



P-IE, Ecology 1

First Place	Second Place
<p>Jessica Butlers Kansas State University</p> <p>Living on the edge: Determining the potential of multipurpose perennial crops as habitat for native pollinators and natural enemies</p>	<p>C. Scott Clem University of Illinois</p> <p>Capacity of beneficial arthropod communities to overwinter within CRP pollinator habitat</p>



P-IE, IPM 2

First Place	Second Place
<p>Zachary Schumm Utah State University</p> <p>Impact of brown marmorated stink bug feeding on tart cherry quality and yield in Utah</p>	<p>Adrian Marshall Washington State University</p> <p>Incomplete shade net enclosures induce behavioral avoidance in codling moth</p>



P-IE, Ecology 2

First Place	Second Place
<p>Sujan Dawadi Purdue University</p> <p>Impervious surface enhance the chances of overwintering survival of evergreen bagworm</p>	<p>Basu Kafle Auburn University</p> <p>Plant-mediated long-range host discrimination in a solitary parasitoid species</p>



P-IE, IPM 3

First Place	Second Place
<p>Ashley Leach Cornell University</p> <p>Integrating pest management for onion thrips and bacterial bulb rot in onion production</p>	<p>Rachel Wilkins Kansas State University</p> <p>Evaluation of optimal deployment of long-lasting insecticide-incorporated netting and semiochemicals against stored product insects around food facilities</p>



P-IE, Plant Disease Vectors

First Place	Second Place
<p>Xiantian Tang Texas A&M University</p> <p>'<i>Candidatus Liberibacter solanacearum</i>' inhibits apoptosis in <i>Bactericera cockerelli</i> gut to facilitate its acquisition and transmission</p>	<p>Jinlong Han North Carolina State University</p> <p>Transcriptomic response of <i>Frankliniella occidentalis</i> guts to tomato spotted wilt virus infection</p>



SysEB 2

First Place	Second Place
<p>Meghan Barrett Drexel University</p> <p>Neuroanatomical differentiation associated with alternative mate location strategies in the brains of dimorphic <i>Centris pallida</i> bees</p>	<p>Adrian Perez University of California, Davis</p> <p>Task repertoires of hygienic workers reveals a link between specialized necrophoric behaviors in honey bees, <i>Apis mellifera</i></p>



P-IE, Pollinator

First Place	Second Place
<p>Ashley St. Clair Iowa State University</p> <p>Impacts of landscape complexity and honey bee presence on wild bee community in a highly cultivated landscape</p>	<p>Roshani Sharma Acharya University of Arkansas</p> <p>Different pan traps for sampling pollinators and beneficial arthropods in the livestock pasture ecosystem</p>



SysEB 3

First Place	Second Place
<p>Ilgoo Kang Louisiana State University</p> <p><i>Megacardiachiles</i>, a new genus of Cardiochilinae (Hymenoptera: Braconidae) from Malaysia, with description of a new species</p>	<p>Grace Hirzel University of Arkansas</p> <p>Active and abundant: Seasonal variation in butterfly communities in Arkansas prairies</p>



SysEB 1

First Place	Second Place
<p>Yelena Pacheco University of Georgia</p> <p>Sexual dimorphism of antennal sensory structures in <i>Photinus pyralis</i></p>	<p>Christian Cabuslay Drexel University</p> <p>Food and function: A study of host diet and nutritive capacities of symbiotic bacteria</p>



Undergraduate Posters

MUVE 1

First Place	Second Place
<p>Landon Mitchell Southeast Missouri State University</p> <p>Effects of iron and molybdenum on the production of amino acids and protein in termites</p>	<p>Brandon Henriquez Oklahoma State University</p> <p>Changing the formula benefits the mites: Grain mite response to dog food formulations</p>



PBT 2

First Place	Second Place
<p>Iris Chin Washington University</p> <p>The contribution of Williams Syndrome-related genes to <i>Drosophila</i> social behaviors reveals an evolutionarily conserved genetic toolkit underlying animal sociality</p>	<p>Ruth Farington Arizona State University</p> <p>Daily macronutrient requirements during the final juvenile instar in the Australian plague locust, <i>Chortoicetes terminifera</i></p>



MUVE 2

First Place	Second Place
<p>Clark Hall Georgia Southern University</p> <p>The role of reactive oxygen species in the gut immune response of cat fleas (<i>Ctenocephalides felis</i>)</p>	<p>Kaniya Sandoval Eastern New Mexico University</p> <p>Determining the effects of flooded environments on deer ticks (<i>Ixodes scapularis</i>) and lone star ticks (<i>Amblyomma americanum</i>) (Acari: Ixodidae)</p>



P-IE 1

First Place	Second Place
<p>Ruth Harrison Texas A&M University</p> <p>Pollinator assemblages across different levels of landscape development in the Post Oak Savannah ecoregion</p>	<p>Joshua Botti-Anderson Montana State University</p> <p>The diversity and abundance of bees and wasps using trap nests in urban environments in Bozeman, Montana</p>



PBT 1

First Place	Second Place
<p>Korie Debardabon North Dakota State University</p> <p>Let me out: Effects of offspring cell position on emergence patterns of solitary, cavity-nesting bee, <i>Megachile ratundata</i></p>	<p>Sabrina Quintanilla Texas A&M University</p> <p>Lipid preferences in laboratory maintained colonies of the red imported fire ant (<i>Solenopsis invicta</i>)</p>




P-IE 2

First Place	Second Place
<p>Izzy Bur University of Minnesota</p> <p>Seasonal mating status and ovary development in Minnesota populations of <i>Drasophila suzukii</i> (Diptera: Drosophilidae)</p>	<p>Chloe Albin Kansas State University</p> <p>Behavioral response of the post-harvest biocontrol agent, <i>Theocolax elegans</i> (Westwood) (Hymenoptera: Pteromalidae), to volatile stimuli depends on natal host environment</p>




P-IE 3

First Place	Second Place
<p>Geneuse Turabawe University of Nebraska</p> <p>Evaluating the movement and infestation potential of soybean gall midge larvae</p>	<p>Earl Agpawa University of Nebraska</p> <p>Sorghum tolerance to phloem-feeding aphids</p>





SysEB 3

First Place	Second Place
<p>Mason Taylor Oklahoma State University</p> <p>The American burying beetle co-exists with a burying beetle brood parasite</p>	<p>Abigail Moon Brigham Young University</p> <p>Back to basics: Environmental factors for the endemic helicopters of Vanuatu (Odonata: Coenagrionidae)</p>



SysEB 1


First Place	Second Place
<p>Lina Schmitt Luther College</p> <p>Moths of oak-hickory forests and planted tallgrass prairies in Luther College's natural areas</p>	<p>Magdeline Anderson Luther College</p> <p>Ground beetle communities of Anderson Prairie and Lionberger Forest Preserve</p>

Graduate Infographics


SysEB 2

First Place	Second Place
<p>Tiffany Domer University of California, Riverside</p> <p>Lessons from the past: Discovery of the earliest known fossil of Eulophidae and its evolutionary implications</p>	<p>Laura Sutherland Brigham Young University</p> <p>A glowing guide to <i>Atyphella</i> Olliff (Coleoptera: Lampyridae) in the South Pacific</p>



MUVE and PBT

First Place	Second Place
<p>Nicole Scavo University of Southern Mississippi</p> <p>Insect specific viruses in Puerto Rican <i>Aedes aegypti</i></p>	<p>Lee Ann Lyons University of Illinois</p> <p>Ticking all the boxes: Tick surveillance in Illinois through collaboration between governmental, academic, and citizen scientists</p>



P-IE 1

First Place	Second Place
<p>Grace Sward Ohio State University</p> <p>Mushroom pest control at a glance</p>	<p>Jeffrey Cluever University of Nebraska</p> <p>Agronomic and pest control benefits of a dry edible bean-winter wheat relay cropping system</p>

Graduate Virtual Posters

P-IE 2

First Place	Second Place
<p>Sarah Anderson University of Florida</p> <p>Changes in the phenology of the southeastern blueberry bee (<i>Habropoda laboriosa</i>) based on historic collections data.</p>	<p>Sajjan Grover University of Nebraska</p> <p>Role of fall armyworm secretions in modulating sorghum defenses</p>

MUVE, PBT, and SysEB

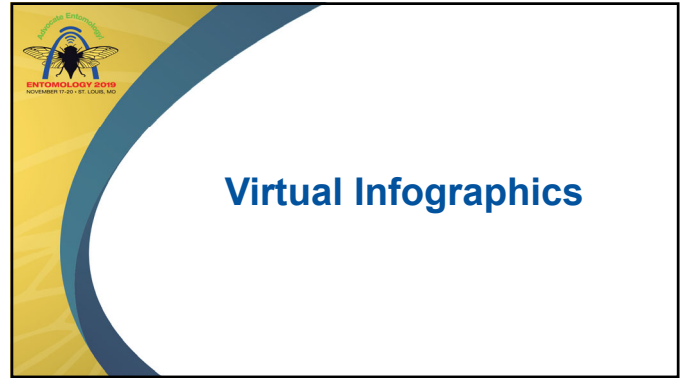
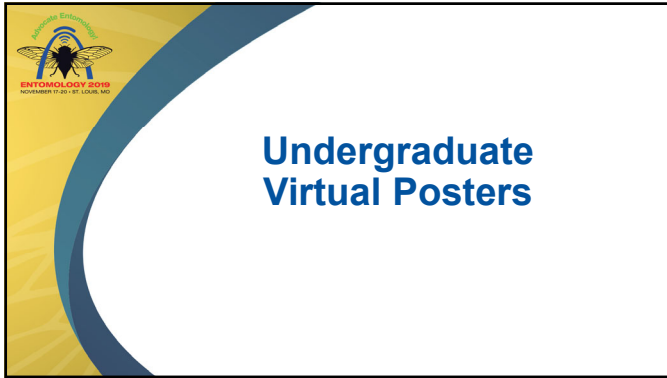
First Place	Second Place
<p>Rosie White University of Florida</p> <p>Assessing virulence of <i>Beauveria bassiana</i> against adult house flies (<i>Musca domestica</i>)</p>	<p>Caitlin Ducat Tulane University</p> <p>Effects of parasitic infection and rearing temperature on the wing morphology of adult eastern migratory monarch butterflies (<i>Danaus plexippus</i>)</p>

SysEB

First Place	Second Place
<p>Olivia Boyd Oregon State University</p> <p>Ask ancient carabids: Toward a time-calibrated phylogeny of Adephaga</p>	<p>Jill Oberski University of California, Davis</p> <p>The importance of systematic entomology in today's world</p>

P-IE

First Place	Second Place
<p>Ashley Schultz Arkansas State University</p> <p>Teamwork makes the dream work: Evaluation of interdisciplinarity between the fields of invasion ecology and biocontrol using scientometrics</p>	<p>Olivia Bernauer Western Sydney University</p> <p>Pollinator efficiency in Australian apple crops: Single visit experiment and pollen analysis</p>



MUVE, PBT, and SysEB

First Place	Second Place
<p>Joseph Arguelles City University of New York</p> <p>Structural analysis of LhetKNOT, a venom peptide of <i>Drosophila</i> parasitoid, <i>Leptopilina heterotoma</i>, reveals potential role of heparin-binding structural motif in antimicrobial activity of knottin proteins</p>	<p>Nanette Hope Sumaya Mindanao State University</p> <p>Isolation and identification of entomopathogenic nematodes from selected areas in Lanao del Norte, Philippines and their infectivity against <i>Zophobas morio</i> (Coleoptera: Tenebrionidae)</p>

All Sections

First Place	Second Place
<p>Kristin Jayd University of Maryland</p> <p>Mangrove herbivory across a salinity gradient</p>	<p>Katherine Bowman St. Louis University</p> <p>Tick-tock it's time for tick talk</p>

P-IE

First Place	Second Place
<p>Andrea Rilaković University of Nebraska</p> <p>Simulating larval movement of <i>Striacosta albicosta</i> in blended refuges by laboratory feeding on non-Bt, Cry1F and Vip3A maize</p>	<p>Brendan Randall Michigan State University</p> <p>Vegans turned flesh-eaters: Altered macronutrient ratios promote cannibalistic behavior in a generalist herbivore (<i>Trichoplusia ni</i>)</p>

Medal Count

Institution	Number of Overall Winners (First and Second Place)
Texas A&M University	13
University of Nebraska	12
Ohio State University	11
University of Florida	10
Pennsylvania State University	8
Iowa State University	6
Cornell University	6
University of Minnesota	6