

## Past *Scientific Process* proposal titles

Many proposals cut across multiple disciplines, please read through them all if you are looking for ideas for a project

### Human Health

- The impact of intraocular pressure and ocular blood flow in glaucoma patients
- Causative Human Behavior: genetic and environmental contributions in self-inflicted or socially harmful behavior in college students
- Thermal biofeedback as an effective treatment for secondary Raynaud's phenomenon
- Blood lipid content: the effect of radiation-damaged lymphatic vessels
- The effects of depression on pre-term labor
- The effects of tetrachloroethylene on pregnant mothers in the White Swan Superfund Site
- Pre-and post testing for early detection of methicillin-resistant *Staphylococcus aureus* in chemotherapy induced neutropenic patients
- Effectively reducing mercury consumption by means of fish preparation
- Discovering Bitalin's mechanism of action
- Does the consumption of sugar have a direct affect on Alzheimer's Disease?
- Early onset puberty related to recombinant bovine growth hormone
- Sunscreen or not: does it really make makeup safer?
- Does the consumption of sugar have a direct effect on the deterioration of Alzheimer's Disease?
- Identifying mold in homes without air conditioning versus homes with air-conditioning after Hurricane Charlie
- The pathogenic bacteria present on ATM (automatic teller) machines

### Genetics

- Genetic associations of hereditary motor-sensory neuropathies
- Fingerprints: do characteristics differ according to race?
- Fibrinogen levels in heartworm positive versus heartworm negative dogs
- The mechanism of genetic mutation in PrPC Prion Protein that causes PrPsc infectivity conformation.
- Identifying peroxiredoxin in *Artenia franciscana*
- FePer1 an antioxidant enzyme in transgenic *Arabidopsis thaliana*
- Study on the expression patterns of FePer1, an antioxidant gene from buckwheat (*Fagopyrum esculentum* Moench), among *Bryophyllum daigremontianum* plants
- Determining the presence of the catnip gene in different breeds of *Felis catus*

### Microbiology

- The effect of viramidine on the viral activity of the H5N1 strand in chickens
- In vitro fertilization of eggs of the direct-developing frogs: *Eleutherodactylus coqui*, *Eleutherodactylus antillensis* and *Eleutherodactylus johnstonei*
- Green fluorescent protein purification
- Determining the expression of Per1, a peroxiredoxin antioxidant gene, in the Sacred Lotus plant
- Study of the expression patterns of FePer1, an antioxidant gene from buckwheat (*Fagopyrum esculentum* Moench) among *Bryophyllum daigremontianum* plants
- To attain ectopic expression of FePer1, a seed-specific antioxidant enzyme among transgenic *Arabidopsis thaliana* seed, under abiotic stress of increased salinity, UV radiation, and high and low temperatures
- Identification of the antioxidant gene Peroxiredoxin in *Artemis franciscana*

## **Geology**

- Can the non-organic fraction of a mangrove peat be used to further differentiate estuarine paleoenvironments
- The role of reef-building mollusks in Everglades National Park throughout the late Holocene: a control on Southwest Florida's coastal geomorphology
- Evolution of coastal landscape geomorphology and community composition in response to sea-level rise and anthropogenic water management in the Ten Thousand Islands , Florida

## **Chemistry**

- Optimization of aqueous phase perchloroethylene destruction: the coupling of Fenton chemistry and titanium dioxide photocatalysis
- Mercury accumulation in Eastern Oysters (*Crassostrea virginica*)
- Measurement of fluoride ion in southwest Florida drinking water
- Exploring brominated disinfection byproducts compounds in the Caloosahatchee Estuary
- Can anodized Ti foils be used as biocidal and/or decontaminating agents in aqueous environments?

## **Sustainability Issues**

- The potential of the biofuel switchgrass (*Panicum virgatum*) to be an invasive in Florida
- The impact of school recycling programs on recycling behavior of students
- Education on the environment and its correlation to students' recycling habits
- Testing the application of rainwater cisterns for water conservation in Southwest Florida
- Evaluation of insulation values of three wall designs
- Industrial ecology in Florida industrial ecosystem
- The application of rainwater cisterns to promote water conservation in southwest Florida
- Solar energy as a viable renewable energy source for demand side application in the state of Florida

## **Education**

- Academic achievement, school attendance, and facilities conditions in Miami-Dade County Public Schools: applying a mediation model
- Exploratory analysis of environmental education among elementary students in the Cocohatchee River Community
- Florida Gulf Coast University campus trial systems: a front-end survey
- The effectiveness of hands-on activities as teaching tools for environmental concepts
- The effect of the amount of science based fieldtrips on the overall education of middle school science students
- A comparative study among fourth and fifth grade elementary students: experiential learning vs. traditional teaching techniques
- Environmental Education Integration in Kindergarten-Graduate Curriculum in Lee County Public Schools
- What contributes to quality ecotourism experiences in Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Management Areas
- Effect of affective versus informational curriculum: focus on attitude toward the environment
- The importance of using constructivist methods when teaching environmental education to high school students
- Affecting students recycling habits through environmental education
- Environmental education integration across the kindergarten through graduate school curriculum of Lee County Public Schools
- Assessing environmental attitudes and knowledge of 6<sup>th</sup> graders at the Green River Preserve Summer Program and within the Lee County School System
- The impact of The University Colloquium on student's ecological perspective

## **Animal Biology**

### **Herpetofauna:**

- The response of brown anoles to differentiating patterns and colors of mock dewlaps when approached in their native habitats
- The role of sociality in the conservation of urban yellow-bellied slider (*Trachemys scripta scripta*) populations
- Occupancy of gopher tortoises in Hickey's Creek Mitigation
- A comparison of amphibian and reptile biodiversity between five reference and seven constructed wetlands in southwest Florida.
- Survival of native anuran species in competition with exotic treefrog, *Osteopilus septentrionalis*
- The effects of controlled burns on gopher tortoise foraging
- American alligator (*Alligator mississippiensis*) growth in developed environments
- Effects of landscape alteration on anuran populations on the FGCU campus
- Retention rates of gopher tortoise (*Gopherus polyphemus*) on eight relocation sites in southwest Florida
- Does light level affect the calling intensity of the green tree frog (*Hyla cinerea*)
- Relocation of loggerhead sea turtle eggs in the event of detrimental shoreline changes to the original nest
- The use of shields on artificial light sources and their effect on nesting behavior by sea turtles
- Aspects of the population dynamics of sympatric *Graptemys barbouri* and *Graptemys ernsti* in the lower Choctawhatchee River of Alabama and Florida

### **Mammals:**

- Small mammal fauna alteration in a wetlands restoration project: pre- and post-restoration comparison
- Feral horses and the effect of temperature on populations
- Human population growth and its relationship to panther mortality in South Florida
- How the endangered Florida Panther is affected by habitat loss and/or habitat fragmentation due to increased human development
- The effects of land management on small mammal populations in isolated coastal scrub habitats
- A comparative study of gopher tortoise burrows in southern Florida to central Florida concerning thermoregulation
- The use of shields on artificial lights and their effects on nesting sea turtles
- Human impacts on a habitat looking at flying tree squirrels
- How the endangered Florida Panther is affected by habitat loss and/or habitat fragmentation due to increased human development
- Effects of the Florida Black Bear potential extinction on local plants through scat analysis
- Investigation if isolated populations of Southern Flying squirrels (*Glaucomys volans*) still inhabit southwest Florida and an assessment of those habitats for sustainability
- Habitat use of the Florida Bonneted Bat (*Eumops floridanus*) within two managed areas of southern Florida
- Determining the population size of bottlenose dolphins, (*Tursiops truncatus*) in Estero Bay, Florida

## Fish:

- Peacock Bass feeding preference between bluegill and Mayan cichlids
- The role of grey mullet (*Mugil cephalus*) in eutrophication of estuaries in Florida
- Initial and terminal Phase Bluehead Wrasse: which fish attracts more client fish?
- The anaerobic capabilities of south Florida's introduced Tilapia (*Oreochromis mossambicus*) from the Picayune Strand canal system
- Uncovering short- and long-term movements of the smalltooth sawfish, *Pristis pectinata*, along the Atlantic coast of the Florida Keys, ascertained through satellite tags
- The environmental impact of the *Clarias batrachus* (walking catfish) on native fish populations compared to other omnivorous exotics
- Differences in the diversity and mortality of larval fishes inside a toxic marine dinoflagellate, *Karenia brevis*, bloom in southwest Florida
- Species occurrence and prey selection of sharks found in three different estuarine salinity habitats in the Ten Thousand Islands region of Southwest Florida, USA
- Breeding strategies and territory size of the orange filefish, *Aluterus schoepfi*
- Uncovering long-term movements and habitat needs of the smalltooth sawfish, *Pristis pectinata*, along the Atlantic coast of the Florida Keys, ascertained through satellite tags
- Distribution of the Red Drum in the Caloosahatchee estuary with altered salinity
- Assessing the effects of hypoxia on fish assemblages at two Charlotte Harbor artificial reefs

## Birds:

- Could the effects of hurricanes create more suitable habitat for the Pileated Woodpecker?
- Determining buffer zones and no-wake zones to minimize human disturbance to foraging wading birds
- Is there a decrease or increase in sandhill crane (*Grus canadensis*) nesting due to wetland conservation?
- Inaccuracy of population density records for three species of grassland prairie songbirds in North America
- Diet and foraging habits of the Monk Parrot (*Myiopsitta monachus*) in Southwest Florida
- Responses of the Florida Scrub Jay to a model predator
- The learning of foraging amongst young laughing gulls and the impact that humans might have on them.
- The effect of human activity on the behavior and population of raptors
- The effects of different types of fire on birds use of edge and adjacent habitats
- Behavior of the Florida Scrub Jay (*Aphelocoma coerulescens*) in a suburban environment
- Least tern (*Sterna antillarum*) colony characteristics and nesting success on natural beaches and rooftops in southwest Florida
- Red-bellied woodpecker (*Melanerpes carolinus*) reproductive characteristics: hatching rates, nesting survival, and number of broods in southwest Florida

## Invertebrates:

- *Pomacea paludosa* vs. *Pomacea insularum*: A study on post-reproductive die-off and competitive advantage of invasive-exotic species
- Examining changes in dragonfly (Anisoptera) communities around storm water ponds as indicators of environmental health of aquatic ecosystems
- The effects of toxin-bearing phytoplankton on marine sponges
- Effects of Garlin on soil microbial life
- A preliminary study of *Diplopoda* in Lee County, Florida
- Horizontal transmission of virus in Caribbean Spiny Lobster *Panulirus argus*
- The effect of gas and oil on pink shrimp (*Farfantepenaeus duorarum*) mortality
- Population profile of the ctenophore *Mnemiopsis mccradyi* in the Caloosahatchee River Estuary
- Effects of freshwater inflows on the spatial and temporal distribution of ichthyoplankton and copepods in the Lower Caloosahatchee River and Estuary

## Water Quality

- Phosphate removal and uptake potential of *Spartina bakeri* in wastewater wetlands riparian buffer zones
- Improving water quality by establishing *Vallisneria americana* (tape grass) in storm water ponds on the Florida Gulf Coast University Campus
- Can recycling wastewater be effective in Florida?
- The effects of pervious concrete of In residential areas on the groundwater in southwest Florida
- Impacts on water quality due to increase of impervious surfaces on the Estero Bay watershed
- Comparison of golf course lake phosphorus concentrations versus farming interests in the Everglades Agricultural Area (EAA)
- Quantifying nutrient absorption in hierarchical stormwater treatment are wetlands
- Nutrient and pesticide input of two landscaping techniques on waterways
- Determining ecological risk and source of silver concentrations in Rookery Bay sediments
- Contamination of private wells from septic systems in densely populated regions
- Survey to determine public's awareness level of septic systems, water quality and the environment
- Water quality of the city of Cape Coral reclaimed wastewater program
- Seasonal variations on nutrient levels and their effects on surface and groundwater on the Florida Gulf Coast University campus
- A comparison of the phytoremediation potential of *Najas quadalupensis* and *Hydrilla verticillata* in a surface flow system, for use in domestic wastewater treatment
- Impacts on water quality due to the increase of impervious surfaces in the Estero bay Watershed
- Contamination of private wells from septic systems in densely populated regions
- The effects of sewage and toxic metals on the Pinar del Rio watershed as a result of the worker village
- Comparison of golf course lake phosphorus concentrations versus farming interests in the Everglades Agricultural area (EAA)
- Technologies for treating wastewater as a potable source
- The effects of fertilizers on water quality within Audubon Certified and non-certified golf courses
- Nutrient and metal removal from stormwater runoff by contaminated wetlands in an urban setting in Naples, Florida
- Water quality at Sarasota County Beaches, bacteria and red tide
- Comparison of total mercury in estuarine and marine sites in southwest Florida

## **Plant Ecology**

- The effect of simple non-glandular trichomes on transpiration in *Arabidopsis thaliana*
- Stomatal control of *Pteridium aquilinum* under two light regimes
- Effects of large-scale *Melaleuca* removal using the Australian weevil & traditional methods of extermination
- A preliminary study of the effect of the removal of dead organic matter and mangrove trimming on mangrove recovery rates following hurricane disturbance
- A survivorship study of two native orchid species: *Epidendrum nocturnum* and *Cyrtopodium punctatum*
- Differential decomposition rates of *Melaleuca quinquenervia* infested forest ecosystems
- The effect of hydrology and soil on the vegetation of Sanibel Island, Florida
- Examining the feasibility of propagating the Endangered bromeliad *Tillandsia utriculata* through tissue culture
- Preliminary investigation of the effect of red and far-red light on the re-initiation of the cauliflower floral program
- Is the cactus *Opuntia megasperma* endangered because of competition for food and habitat between the Galapagos Giant Tortoise and introduced mammals in the Galapagos Islands
- Effects of salinity and temperature on the establishment and early development of the red mangrove, *Rhizophora mangle*
- Tidal currents influence on red mangrove (*Rhizophora mangles*) community recovery post-disturbance: revisiting Hurricane Charley (2004) effects on Charlotte Harbor
- A comparison of whole tree water use between *Pinus elliotii* and *Taxodium distichum* to an invasive exotic, *Melaleuca quinquenervia*
- Transpiration of *Melaleuca quinquenervia* invading a pine flatwoods community

## **Land Management and Restoration Ecology**

- Wetland delineation and hydric soils: correlations for professional analysis
- Influence of overlapping watersheds within the south Lee County area on the Audobon Corkscrew Swamp Sanctuary and CROW Trust lands
- Vegetation monitoring and mapping of the ecotonal areas as part of the Prairie Canal Restoration Project
- Effectiveness of mechanical control on *Rhodomyrtus tomentosa* in southwest Florida
- A preliminary study of the effects of removal of dead organic matter and mangrove trimming on mangrove recovery rate following hurricane disturbance
- The effect of seedling dispersal and stump grow back in wetland mitigation areas, post-disturbance, during restoration efforts
- Monitoring the biological integrity of Lake Trafford following muck removal restoration efforts

## Marine Sciences

- Artificially-reared common snook (*Centropomus undecimalis*) are capable of reproducing in the wild
- Biological difference of *Hoplosternum littorale* in brackish and freshwater environments
- Salinity tolerance of an estuarine mud crab, *Eurypanopeus depressus*
- Assessing the effects of hypoxia on fish assemblages at two Charlotte Harbor Artificial Reefs
- Signage as an effective method of reducing damage to *Thalassia testudinum* (seagrass) beds in Southwest Florida.
- Determining the effects of beach nourishment on the benthic community of a Southwest Florida beach.
- Enhanced immune response due to copper, results in decreased disease incidence in *Crassostrea virginica* with *Perkinsus marinus*
- In vitro and in vivo evaluation of quinine as a chemotherapeutic to mitigate *Perkinsus marinus* infection of the eastern oyster
- Effects of major freshwater events on initiation and transport of *Karina brevis* blooms on Florida's West Coast
- Determining the effect of salinity and predation on red mangrove root fouling communities
- *Perkinsus marinus* disease in oysters (*Crassostrea virginica*), adding and measuring quinine to see effects on health
- An examination of sunscreen impacts on coral bleaching in the Florida Keys
- Determination of trophic levels and habitat use on an oyster (*Crassostrea virginica*) reef using stable isotope analyses
- Correlation of epiphytic growth on seagrass blades to nutrients found in the water column and seagrass coverage in southwest Florida
- Bioaccumulation and depuration rates of brevetoxins in *Mercenaria mercanaria*
- Identification of an estuarine turbidity maximum and sedimentation gradient: implications for oyster reef monitoring, restoration, and management in the Caloosahatchee Estuary, southwest Florida.
- Seagrass community influence on nutrient fluxes in a southwest Florida estuary
- Primary sources of nutrients and nutrient loads in the Caloosahatchee River and nutrient fluxes among mangrove islands of the Caloosahatchee River estuary system: implications for *Karenia brevis* blooms
- Evaluation of quinine as a potential chemotherapeutic for mitigating *Perkinsus marinus* infections of the eastern oyster