**Element 1: Assists with and conducts experiments**

* Maintained a 3.66 GPA at the University of Florida
* Maintain a colony of European corn borer, *Ostrinia nubilalis,* here at the USDA-ARS CMAVE courtesy of Dr. Daniel Hahn of the University of Florida.
  + Colony established on August 15, 2016 under diapause and non-diapause conditions
    - Diapause larvae maintained at 23°C, 12:12 L:D photoperiod, and 65% rH
    - Non-diapause larvae and maintained at 23°C, 12:16 L:D photoperiod, and 65% rH
  + Maintained adequate biotic and abiotic conditions for health.
    - Insect artificial diet preparation and environmental control monitoring
    - Daily surveys of colony for general health growth, development, and growth.
    - Genetic variation within strains maintained by regular infusions of eggs from the University of Florida.
* UPLC user proficiency using OpenLab software and Mass Hunter Software.
  + Lipids separated into classes and the concentration of Triglycerides determined
* Developed, innovated, and validated new and existing experimental protocols.
  + Developed: “Wandering Assay”
  + Innovated: Larval “Bleeding Assay”
  + Validated: FAME derivitization
* Undergraduate Trainer
  + Each student taught proper safety standards of the lab and the unit.
  + Each student taught to prepare calibration standards, calculate dilutions, manually inject samples, and analyze results for accuracy.
* Undergraduate Mentoring (400+ mentoring hours)
  + Trained students in organic chemistry techniques to separate and modify specific analytes
    - Liquid-liquid separation and base-catalyzed derivitization
  + Jeremiah Martinez
    - January 2018 - Present
  + Erin Lapasaran
    - December 2018 – Present

**Element 2: Practices Safety/SHEM/EEO/CR**

* Wearing PPE as required preventing injury, negligent practices are avoided, and violations and/or incidents are reported to supervisor.
* Performs duties and responsibilities in a manner that is fair and respectful.
* Aware of EEO and CR policies.
* Demonstrates support to EEO and CR policies.
* Written and oral communications are free of discriminatory bias.
* Attempts to discourage unlawful discrimination by maintaining an unbiased atmosphere.
* Participated in lab safety walk through. Itemized safety deficiencies, ordered materials to correct safety issues.
* Trained undergraduate volunteers in lab safety regulations and procedures
* Graduate Student Committee Member
  + Member: IFAS Center for Stress Resilience Fellowship Committee
  + President: Entomology and Nematology Student Organization
* Outreach
  + Volunteer entomology guide at 2018 Learning Gate Community School BioBlitz in Lutz, FL.
  + Invited guest at 2018 Glen Springs Insect Day in Gainesville, FL.
  + Invited guest at 2018 University of Florida Bug Camp in Gainesville, FL.
  + Invited judge at 2018 University of Florida 4H Insectathon
* Collaborated with IFAS to exemplify diversity in Science to High School Students here in Florida
  + <http://ifasgallery.ifas.ufl.edu/m4v/Entomology/James-Brown-Interview.m4v>

**Element 3: Maintains equipment and supplies and materials**

* Performs periodic cleaning, maintenance and calibrations on instruments and equipment when necessary.
  + SpeedVac
    - Removed water from oil bath to ensure longevity of solvent cold trap reservoir
  + Lyophillizer:
    - Recognized and reported “Oil change” fault. Replace oil and restored regular operation of instrument
  + Ultra Performance Liquid Chromatography
    - Discovered leak in LC solvent line and used manual and online resources to determine the source of the leak. Confirmed cause of leak to be the result of faulty septa lined crimp caps. Replaced filter on LC, destroyed faulty caps, and restored instrument function.
  + GC Regular maintenance (septa, inlet, liner replacements)
    - Flame Ionization Detector:
      * Discovered baseline inconsistencies during instrument response runs using clean solvent. Discovered source of baseline issue as septa related and confirmed result with a series of trials.
      * Learned to perform full inlet maintenance to clean injection and inlet area.
    - Mass Spectroscopy Detector:
      * Informed of baseline issues by Nausheena and shadowed her and participated in corrective action to resolve baseline issue
* Maintains cleanliness of work areas after use.
  + Laboratory fume hood improvements
* Participated in lab checks to determine consumable supply levels and predict procurement of necessary supplies and equipment.

**Element 4: Processes Data**

* Presentations:
  + Invited speaker at 2018 ACS AGRO Division in Boston, MA.
* Publications:
  + Robert L. Meagher, Jr., Kristal Watrous, Shelby J. Fleischer, Rodney N. Nagoshi, James T. Brown, Kristen Bowers, Neil Miller, Stephen D. Hight, Jesusa C. Legaspi, and John K. Westbrook. *Visitation of Pollinators to Sunn Hemp and Community Composition Among Different Cover Crop Plants* Environmental Entomology (pending publication)
  + Meagher Jr, R.L., Nagoshi, R.N., Brown, J.T., Fleischer, S.J., Westbrook, J.K., Chase, C.A*. Flowering of the cover crop sunn hemp, Crotalaria juncea L*. HortScience. 52(7):986-990 (2017).
* Digital and analog copies of data maintained electronically and in laboratory books
* Compiled thesis document showcasing;
  + Experimental design
  + Data analysis
  + Defense of research program and model organism.
* All relevant information and details are recorded in a manner that can be referenced and repeated.
* Laboratory data is recorded, summarized, and analyzed using R Studio.
* Experiment data is maintained, organized and accessible to the researcher and others
* Meeting with SY regularly for advice, guidance, and project status updates.
* Attending staff meetings when scheduling permits.