2017 STAT Short Course: 
Mixed models for agricultural and biological research

**Dates:** May 31 to June 2, 2017. The short course will meet May 31 and June 1 from 8:00 am to 12:00 pm and on June 2 from 1:00 to 5:00 pm.

**Instructor:** Nora M. Bello, DVM, PhD, Associate Professor, Department of Statistics, K-State 
[https://www.k-state.edu/stats/people/bello.html](https://www.k-state.edu/stats/people/bello.html)

**Location:** K-State campus, TBD.

**Course duration:** Total of 12 hours, distributed in 3 consecutive days of 4 hours each.

**Brief description:** This short course will provide a fairly comprehensive exposition of mixed-model based statistical data analysis, power determination and sample size calculation for commonly used experimental designs in the agricultural and biological sciences. The approach will be workshop-like, example-driven and primarily based on the various mixed model analysis procedures available in SAS software. General and generalized mixed models for normal and non-normal responses will be discussed in the context of structured data from designed experiments and observational studies.

**Tentative schedule:**

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<th>Days</th>
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| 1    | - Why mixed models? Introduction.  
      | - Treatment structure and design structure. Dealing with data architecture: blocks, clusters, nested effects, subsampling.  
      | - Mixed models diagnostics |
| 2    | - Analysis of repeated measures data  
      | - Generalized linear mixed models for non-normal responses |
| 3    | - Mixed models for power and sample size calculations for normal and non-normal responses  
      | - Social at Tallgrass Tap House |

**Target audience:** K-State faculty and affiliated researchers and collaborators, including graduate students and postdocs with an interest on designed experiments and observational studies in the agricultural and biological sciences.

**Cost:** Free to K-State affiliates. Funding for this workshop has been provided by Shell U.S.

**Capacity:** Limited to 20 participants. Applications should be sent to Ms. JoAnn Blackburn at [jablack@ksu.edu](mailto:jablack@ksu.edu) and will be considered on a first-come first-serve basis. Registration will be confirmed by May 5 2017.

**Considerations:**
- Required background on applied linear models, specifically linear regression and ANOVA (i.e. STAT 705 or equivalent). Graduate students please submit an unofficial transcript (does not have to be a K-State transcript).
- Prior experience programing with SAS would be preferred but it is not required.
- Participants should have available a laptop with a power source and licensed SAS software.