

Scope of Dissertation for Food Science Ph.D.
F. Ryan Dowdy

What will be included:

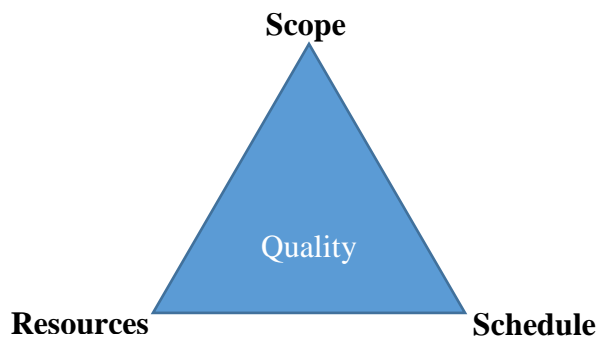
1. Meta-analysis of microbial fuel cells for food and agricultural wastes (in-work publication)
2. Simultaneous COD reduction and electricity generation from undiluted food waste digestate (in-work publication)
3. Microbiome analysis of subcommunities in microbial fuel cells fed with food waste digestate (in-work publication)
4. Spatial and phylogenetic assessment of biofilms in microbial fuel cells (need data)
 - i. Specific Aim 1: Test the effect of temperature and acetate addition on MFC power density and biofilm properties (independent variables open to modification)
 - ii. Specific Aim 2: Build statistical models for power density, biofilm structure, and biofilm phylogeny (dependent variables studied open to modification)
 - iii. Specific Aim 3: Validate high-performance model

What will not be included:

- Arla Foods Fellowship/Microbial Desalination Cell work
- Study of various substrata for microbial adhesion
- Study of various imaging techniques
- Study of various microbial fuel cell architectures
- Study of various feedstocks

Limiting factors:

- The Iron Triangle of Project Management



This dissertation is slated to be completed no earlier than summer 2018. Since these experiments will be run for the first time, scheduling accurately for project management is difficult. Schedule may slip due to unforeseen obstacles. Resources available will be two undergraduates for experimentation work. The scope will be limited to what is mentioned above. Increases in scope would require increased resources or schedule to maintain the same quality of dissertation. Similarly, decreased resources would dictate a lengthened schedule or a narrowed scope to accommodate the same dissertation quality.