TO: The Faculty of the College of Engineering

FROM: The School of Agricultural and Biological Engineering

RE: Change to Existing ABE 30100, Modeling and Computational Tools In Biological Engineering pre-requisites, description, and title.

The Faculty of the School of Agricultural and Biological Engineering have approved the following changes to an existing course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

From: ABE 30100 – Modeling and Computational Tools in Biological Engineering
Sem Fall and Spring, Cr 3, Lecture 3
Requisites, Restrictions, and Attributes: ABE 20200 AND (MA 26500 AND MA 26600)

Description: Introduction to principles of analysis, setup, and modeling of biological systems using fundamental principles of engineering. Development of algebraic and differential models of steady state and transient processes involving material and energy balances, elementary thermodynamic, transport, and kinetic reaction principles, and economics in biological engineering systems.

To: ABE 30100 – Numerical and Computational Modeling in Biological Engineering
Sem Fall and Spring, Cr 3, Lecture 3
Requisites, Restrictions, and Attributes: ABE 30700 AND CS 15900 AND [(MA 26200 AND MA 30300) OR (MA 26500 AND MA 26600)]

Description: Introduction to principles of analysis, setup, and modeling of biological systems using fundamental principles of engineering. Economics in biological engineering systems. Development of mathematical and numerical models to solve steady state and transient processes involving material and energy balances and utilizing thermodynamic, transport, and kinetic reaction principles.

Reason: Advances in the biological and agricultural sciences require a solid foundation in the mathematical and computational sciences. The MA 30300 prerequisite will give students a better understanding of partial differential equations in addition to ordinary differential equations. The CS 15900 prerequisite should improve the students' computer programming skills. This should enable BE graduates to more effectively mathematically model, simulate and design efficient biological, food and pharmaceutical process systems.

Bernard A. Engel, Professor and Head
Agricultural and Biological Engineering Department