

COURSE SCHEDULING ANNOUNCEMENT: The following on-line web-based interdisciplinary graduate course is offered twice per year, once in Term 1 and again in the Spring Semester.

BENG 5613: SIMULATION MODELING OF BIOLOGICAL SYSTEMS
(SUB-TITLE: USING SYSTEMS DYNAMICS TO MODEL CONTINUOUS SYSTEMS)

- For students interested in computer simulation, especially as related to examining policy impacts on sustainability-

COURSE GOAL AND OBJECTIVES: To enable students to develop a comprehensive systems approach for analyzing and modeling continuous dynamic systems of all types to include biological, technological, economic and societal, especially as influenced by policies that are associated with sustainability:

- Expertise in using the System Dynamics approach to symbolically present the dynamic relationships among various components of the system to be modeled in a manner to be readily understood by those having different backgrounds, experiences, expertise and perspectives.
- Being able to use the full range of System Dynamics techniques to model dynamic continuous systems through the use of Excel.
- Being able to use the full range of System Dynamics techniques to model dynamic continuous systems through the use of the Vensim PLE simulation language.
- To become aware of the professional initiatives, endeavors, literature and organizations associated with System Dynamics.
- To become sufficiently competent with the use of System Dynamics so as to be able to conceptualize and model dynamic continuous systems, especially those that are related to sustainability and the linkages among technology, economics and societal values.

SUMMARY COURSE INFORMATION

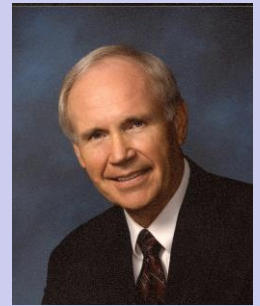
- **Audience:** Designed for graduate students with an aptitude in computer programming and experience in using spreadsheets.
- **Format:** Distance Education and web-based using UA's "Blackboard".
- **Lectures:** Prerecorded with on-demand viewing.
- **Credit:** 3-hours.
- **Assignments:** Mostly project-based with no formal examinations.
- **Text:** None (downloadable required reading list).
- **Software requirements:** Excel and free downloadable simulation language (Vensim PLE) with both used in project development.
- **Prerequisites:** Graduate standing or consent of Instructor.
- **Special Opportunity:** Especially well-suited for MSE and OMGT students who wish to develop a "special problems" course related to some aspect of sustainability.

COURSE SYLLABUS AND RELATED INFORMATION IS

- Available in Instructor's website: <https://exploring-linkages.uark.edu/>

THE INSTRUCTOR IS

Otto J. Loewer, Professor of Biological & Agricultural Engineering, Ph.D., P.E.; 226 White Engineering Hall, University of Arkansas, Fayetteville, AR 72701; OJL@uark.edu; Office: (479) 575-5118; Mobile: (479) 409-8182.
(See the material on the right panel for more information.)



Otto Loewer's career spans six land-grant universities where he has worked in research, teaching, extension, economic development and administration. Honors include being past international president of the American Society of Agricultural and Biological Engineers where he is a Fellow, member of the LSU College of Engineering Hall of Distinction, Engineer of the Year in Arkansas and Communicator of the Year in NW Arkansas. He has BS, MS and PhD degrees in Agricultural Engineering (LSU, Purdue), an MS in Agricultural Economics (Michigan State), a certificate of completion from the University of Oklahoma Economic Development Institute, and is a registered professional engineer. Professional highlights include serving as dean of engineering at the University of Arkansas and as founding director of the University of Arkansas Economic Development Institute.

Loewer has extensive experience in leading large interdisciplinary computer modeling initiatives. This course in its current form was first offered in the Spring 2014.