
Simulation with Arena: Modeling and Analysis

Course ALMC SE 03-709

28 July - 1 August 2003

Location: Center for Strategic Leadership, US Army War College

Synopsis: This course focuses on the construction of simulation models using the simulation software package Arena while covering the analytical aspects of utilization of simulation models.

Topics include:

- **What is Simulation?**
- **Fundamental Simulation Concepts**
- **A Guided Tour through Arena**
- **A Refresher on Probability and Statistics (for Simulation)**
- **Modeling Basic Operations**
- **Statistical Input Analysis**
- **Detailed Modeling**
- **Statistical Output Analysis - Terminating Simulation**
- **Intermediate Modeling**
- **Statistical Output Analysis - Steady-State Simulation**
- **Entity Transfer**
- **Further Statistical Issues**
- **Survey of Simulation Output Problems and Methods**
- **Designing Simulation Experiments**
- **Some Modest Proposals for Simulation Software**
- **Course Wrap-up and Graduation**

Texts: Each participant will receive a bound handout of the presentation materials and the text Simulation with Arena. They will also receive a student version of the simulation software package *Arena*.

Dr. W. David Kelton

W. David Kelton is Professor and CBA Research Fellow in the Department of Quantitative Analysis and Operations Management in the College of Business Administration at the University of Cincinnati. He received a B.A. in mathematics from the University of Wisconsin-Madison, an M.S. in mathematics from Ohio University, and M.S. and Ph.D. degrees in industrial engineering from Wisconsin. He was formerly on the faculty at Penn State, the University of Minnesota, the University of Michigan, and Kent State. Visiting posts have included the University of Wisconsin, the Institute for Advanced Studies in Vienna and the Warsaw School of Economics.

His research interests and publications are in the probabilistic and statistical aspects of simulation, applications of simulation, statistical quality control, and stochastic models. His papers have appeared in *Operations Research*, *Management Science*, the *INFORMS Journal on Computing*, *IIE Transactions*, *Naval Research Logistics*, and the *Journal of the American Statistical Association*, among others. He is coauthor, with Averill M. Law, of *Simulation Modeling and Analysis*, currently in its third edition for McGraw-Hill, which has sold over 83,000 copies worldwide since 1982. He is also co-author of *Simulation with Arena*, with Randall P. Sadowski and Deborah A. Sadowski, now in its second edition, which has sold over 27,000 copies worldwide since 1998, receiving McGraw-Hill's award for Most Successful New Title in 1998; it has been translated into Japanese and Korean. Grants have come from major organizations throughout the country to include the U.S. Department of Education.

He is Editor-in-Chief for the *INFORMS Journal on Computing*, and has served as Simulation Area Editor for *Operations Research*, the *INFORMS Journal on Computing*, and *IIE Transactions*, Associate Editor of *Operations Research*, the *Journal of Manufacturing Systems*, and *Simulation*, and was Guest Co-Editor for a special simulation issue of *IIE Transactions*. He regularly reviews for many journals, NSF, and NSERC. In 1982 he received the TIMS College on Simulation award for best simulation paper in *Management Science*, in 1994 the IIE Operations Research Division Award, in 1997 a Meritorious Service Award from *Operations Research*, in 1998 the INFORMS College on Simulation Distinguished Service Award, and in 2001 the INFORMS College on Simulation Outstanding Simulation Publication Award. He was President of the TIMS College on Simulation and was the INFORMS co-representative to the Winter Simulation Conference Board of Directors from 1991 through 1999, where he served as Board Chair for 1998. In 1987 he was Program Chair for the WSC, and in 1991 was General Chair. He has consulted for multiple major organizations world wide to include the U.S. Army Logistics Management College.

ADMINISTRATIVE INFORMATION

PLACE: Collins Hall, Building 650, 650 Wright Ave, US Army War College, Carlisle, PA.

HOURS: Class will begin at 0800 Monday morning and end at 1100 Friday. No food or drinks will be allowed in the classroom.

ELIGIBILITY: Military Officers who possess OPMS Functional Area 49 (ORSA) and civilian GS-1515 analysts. A graduate degree in ORSA or ORSA-related field is preferred. Others may attend on a space available basis.

CLASSIFICATION: The class will be held in a secured facility. Students accepted into the course must FAX their Security Status Information Attention: Ms. Diane Pharo at (717) 245-4433.

LODGING/DIRECTIONS: DOD military and civilians may stay at Guest Housing. For reservations, dial (717) 245-4245.

FUNDING: All costs for the course, to include registration and issue materials, will be paid by ALMC. Travel and TDY payments for all personnel must be made by the attendee's parent organization.

APPLICATION: Personnel desiring to attend should apply via their Training Officer through the Army Training Requirements and System (ATRRS), Course Code ALMC-SE 03-709.

POINT OF CONTACT: Further information may be obtained via DSN 539-4249/Commercial (804) 765-4249, DSN 539-4226/Commercial (804) 765-4226 or e-mail orsacep@lee.army.mil.
