

## References

1. This list contains books at the undergraduate level that involve mathematical modeling or applied problem solving. Many include military examples, especially those that emphasize operations research.

J. G. Andrews and R. R. McLone, *Mathematical Modelling*. Butterworths, 1976.

E. A. Bender, *An Introduction to Mathematical Modeling*. Wiley, 1978.

D. Burghes, P. Galbraith, N. Price, and A. Sherlock, *Mathematical Modelling*. Prentice Hall, 1996.

J. Berry and K. Houston, *Mathematical Modelling*. Edward Arnold, London, 1995.

D. N. Burghes, I. Huntley, and J. McDonald, *Applying Mathematics: A Course in Mathematical Modelling*. Halsted Press, 1982.

D. N. Burghes and A. D. Wood, *Mathematical Models in the Social, Management, and Life Sciences*. Halsted Press, 1980.

R. R. Clements, *Mathematical Modelling: A Case Study Approach*. Cambridge Press University, 1989.

M. Cross and A. O. Moscardini, *Learning the Art of Mathematical Modelling*. Ellis Horwood, 1985.

P. Doucet and P. B. Sloep, *Mathematical Modeling in the Life Sciences*. Ellis Horwood, 1992.

C. L. Dym and E. S. Ivey, *Principles of Mathematical Modeling*. Academic Press, 1980.

L. Edelstein-Keshet, *Mathematical Models in Biology*. Random House, 1987.

E. Edwards and M. Hamson, *Guide to Mathematical Modelling*. CRC, 1990.

A. Friedman and W. Littman, *Industrial Mathematics: A Course in Solving Real-World Problems*. SIAM, 1994.

A. C. Fowler, *Mathematical Models in the Applied Science*. Cambridge University Press, 1997.

G. Fulford, P. Forrester, and A. Jones, *Modelling with Differential and Difference Equations*. Cambridge University Press, 1997.

- S. Gass, *Operations Research, Mathematics, and Models*. American Mathematical Society, 1981.
- K. J. Hastings, *Introduction to the Mathematics of Operations Research*. M. Dekker, 1989.
- F. R. Giordano, M. D. Weir, and W. Fox, *A First Course in Mathematical Modeling* (Second Edition). Brooks/Cole, 1997.
- D. Hart and T. Croft, *Modelling with Projectiles*. Chichester, 1988.
- J. N. Kapur, *Mathematical Modelling*. Wiley, 1988.
- M. S. Klamkin, *Mathematical Modelling: Classroom Notes in Applied Mathematics*. SIAM, 1987.
- P. A. W. Lewis and E. J. Orav, *Simulation Methodology for Statisticians, Operations Analysts, and Engineers*. Brooks/Cole, 1989.
- W. H. Marlow, *Mathematics for Operations Research*. Wiley, 1978.
- M. M. Meerschaert, *Mathematical Modeling*. Academic Press, 1993.
- M. Mesterton-Gibbons, *A Concrete Approach to Mathematical Modelling*. Addison-Wesley, 1989.
- W. J. Meyer, *Concepts of Mathematical Modeling*. McGraw Hill, 1984.
- D. N. P. Murthy, N. W. Page, and E. Y. Rodin, *Mathematical Modelling. A Tool for Problem Solving in Engineering, Physical, Biological and Social Sciences*. Pergamon Press, 1990.
- T. Saaty, *Mathematical Methods of Operations Research*. Dover, 1988.
- J. W. Schmidt and R. P. Davis, *Foundations of Analysis in Operations Research*. Academic Press, 1981.
- A. M. Starfield, K. A. Smith, and A. L. Bleloch, *How to Model it: Problem Solving for the Computer Age*. McGraw-Hill, 1990.
- T. P. Svobodny, *Mathematical Modeling for Industry and Engineering*. Prentice-Hall, 1998.
- F. Y. M. Wan, *Mathematical Models and their Analysis*. Harper & Row, 1989.

2. This next list contains books that explicitly discuss the use of mathematical modeling (or operations research) in the military.

S. J. Andriole and G. W. Hopple, *Defense Applications Of Artificial Intelligence: Progress And Prospects*. Lexington Books, 1988.

M. De Landa, *War In The Age of Intelligent Machines*. Zone Books, 1991.

T. N. Dupuy, *Numbers, Predictions, and War: The Use of History to Evaluate and Predict the Outcome of Armed Conflict*. Hero Books, 1985.

J. J. Ewell and I. A. Hunt, *Sharpening the Combat Edge: the use of Analysis to Reinforce Military Judgement*. U.S. Government Printing Office, 1974.

W. P. Hughes, *Military Modeling*. Military Operations Research Society, 1989.

W. T. Johnsen, *The Principles of War in the 21<sup>st</sup> Century: Strategic Considerations*. Strategic Studies Institute, U.S. Army War College, 1995.

P. F. Lehner, *Artificial Intelligence And National Defense: Opportunity And Challenge*, Tab Books, 1989

J. S. Przemieniecki, *Introduction to Mathematical Methods in Defense Analyses*. American Institute of Aeronautics and Astronautics, 1990.

J. S. Przemieniecki, *Mathematical Methods In Defense Analyses*. American Institute of Aeronautics and Astronautics 1994.

A. Roland, *The Technological Fix: Weapons and the Cost of War*. Strategic Studies Institute, U.S. Army War College, 1995.

S. P. Rosen, *Winning the Next War: Innovation and the Modern Military*. Cornell University Press, 1991.

R. W. Shephard, E. R. Haysler, and A. Lakin, *Applied Operations Research: Examples From Defense Assessment*. Plenum Press, 1988.

G. R. Sullivan and A. M. Coroalles, *The Army in the Information Age*. Strategic Studies Institute, U.S. Army War College, 1995.

J. G. Taylor, *Force-On-Force Attrition Modeling*. Military Operations Research Society, 1980.

J. G. Taylor, *Lanchester Models of Warfare*. Ketron, Inc, 1983.

A. R. Washburn, *Search and Detection*. Ketron, Inc, 1981.

W. P. Wayne, *Military Modeling*. Military Operations Research Society, 1984.

M. Youngren, *Military OR Analyst's Handbook (2 Volumes)*. Military Operations Research Society, 1994.

P. W. Zehna and A. F. Andrus, *Selected Methods and Models in Military Operations Research*. U.S. Government Printing Office, 1972.

3. This list contains volumes located in the Department of Mathematical Sciences, USMA, that specifically include military mathematical modeling, usually associated with faculty research in the form of a graduate thesis or a research product done for the Army.

K. C. Benson, *Modeling Data Encapsulation and a Communication Network for the National Training Center, Fort Irwin, CA*. (Thesis) Naval Postgraduate School, 1997.

D. A. Boerman, *Finding An Optimal Path Through A Mapped Minefield*. (Thesis) Naval Postgraduate School, 1994

D. D. Cersovsky and E. Kleinschmidt, *Mathematical Model and Analysis of the Tactical Unmanned Group Vehicle (TUGV) Using Computer Simulation*. (Thesis) Naval Postgraduate School, 1993.

M. M. Cornstubble, *Dynamics of a U.S. Military Theater Medical Evacuation Policy*. (Thesis) Georgia Institute of Technology, 1992.

D. J. Day, *Minimization of Cost and Target Escapes in Combat Models using the Multivariate Polya Distribution*. (Thesis) Georgia Institute of Technology, 1997.

W. P. Fox, *Application of Pseudo-Boolean Models in Weapon System Design*. (Thesis) Clemson University, 1990.

D. E. Goulette, *Training Assessment and Modeling: subjective data encapsulation for the National Training Center*. (Thesis) Naval Postgraduate School, 1997.

M. J. Johnson, *Qualifying the Value of Reconnaissance using Lanchesterian type Equations*. (Thesis) Naval Postgraduate School, 1994.

R. E. Lazzell, *Mathematical Modeling and Analysis of Survivability and Morbidity Rates*. (Thesis) Naval Postgraduate School, 1996.

Mathematical Sciences Center of Excellence, *Proceedings of the Third Annual US Army Research Laboratory/United States Military Academy Technical Symposium*. Government Printing Office, 1995.

Mathematical Sciences Center of Excellence, *Proceedings of the Fourth Annual US Army Research Laboratory/United States Military Academy Technical Symposium*. Government Printing Office, 1996.

Mathematical Sciences Center of Excellence, *Proceedings of the Fifth Annual US Army Research Laboratory/United States Military Academy Technical Symposium*. Government Printing Office, 1997.

K. Pilgrim, *Analysis of the Soviet Artillery Norms Methodology*. (Thesis) Air Force Institute of Technology, 1985.

T. D. Pijor, *Mine/Countermine Basis of Issue Optimization Plan*. (Thesis) Naval Postgraduate School, 1988.

R. J. Polo, Jr., *Innovation in the U.S. Army Corps of Engineers: A Case Study of Fort Drum*. (Thesis) Massachusetts Institute of Technology, 1989.

M. A. Sanzotta, *Analysis of the Survivability of the Advanced Field Artillery System (Crusader) using the Janus (A) Combat Model*. (Thesis) Naval Postgraduate School, 1995.

B. F. Schliemann, *Analysis And Modeling Of The Initiative Tenet Of Current Army Operations Doctrine*. (Thesis) Georgia Institute of Technology, 1996.

J. G. Singleton, *Stationing United States Army Units to Bases: A Bi-Criteria Mixed Integer Programming Approach*. (Thesis) Naval Postgraduate School, 1991.

J. A. Southcott, *Analysis of Antiarmor Organizations in Defensive Desert Operations by Airborne Infantry*. (Thesis) Georgia Institute of Technology, 1992.

S. Strukel, *Analysis of the Command and Control Network Model and Linkage Mechanism with Force Evaluation Models*. (Thesis) Naval Postgraduate School, 1992.

S. R. Torgerson, *Mathematically Modeling the Effects of Low-Level Learning in Combat Simulations and War Games*. (Thesis) Georgia Institute of Technology, 1992.

*Weapon Systems, United States Army 1998*, Government Printing Office, 1998.

A. Wilmer, *Javelin Analysis Using Mathematical Modeling*. (Thesis) Naval Postgraduate School, 1994.

R. K. Wineinger, *A Computer Simulation Analysis of Alternatives to the M728 Combat Engineer Vehicle (CEV)*. (Thesis) Naval Postgraduate School, 1996.