

The following list of references for math and statistics texts may be useful.

High Quality Online Texts and Notes:

Also see (<http://homepages.nyu.edu/~jmg336/html/mathematics.html>), (www.intute.ac.uk/sciences/), (www.econphd.net/notes.htm), and (<http://statlink.tripod.com/id20.html>).

Ash, R.B. (1993), *Real Variables: with Metric Space Topology*, IEEE Press, NY. Available from (www.math.uiuc.edu/~r-ash/).

Ash, R.B., and Novinger, W.P. (2004), *Complex Variables*. Available from (www.math.uiuc.edu/~r-ash/).

Cook, R.D., and Weisberg, S. (1982), *Residuals and Influence in Regression*, Chapman & Hall, London, (out of print), available from (www.stat.umn.edu/rir/).

Li, K.C. (2000), *High Dimensional Data Analysis via the SIR/PHD Approach*, Unpublished Manuscript Available from (www.stat.ucla.edu/~kli/).

Olive, D.J. (2010), *A Course in Statistical Theory*, available from (www.math.siu.edu/olive/infbook.htm).

Olive, D.J. (2009), *Applied Robust Statistics*, available from (www.math.siu.edu/olive/ol-bookp.htm).

Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (www.math.siu.edu/olive/regbk.htm).

Calculus, Undergrad Level:

Adams, C., Hass, H., and Thompson, A. (1998), *How to Ace Calculus*, W.H. Freeman, New York, NY.

Ash, C., and Ash, R.B. (1993), *The Calculus Tutoring Book*, Wiley, New York, NY.

Klaff, A.A. (1956), *Calculus Refresher*, Dover, New York, NY.

Lang, S. (1986), *A First Course in Calculus*, Springer, New York, NY.

Kline, M. (1998), *Calculus: an Intuitive and Physical Approach*, 2nd ed., Dover, New York, NY.

Silverman, R.A. (2003), *Modern Calculus and Analytical Geometry*, Dover, New York, NY.

Thompson, S.P., and Gardner, M. (1998), *Calculus Made Easy*, St. Martins Press, New York, NY.

Math 450, Advanced Calculus, Grad Undergrad level:

Kaplan, W. (1984), *Advanced Calculus*, 3rd ed., Addison–Wesley, Reading, MA.

Widder, D.V. (1989), *Advanced Calculus*, 2nd ed., Dover, New York, NY.

Math 452, Introduction to Analysis, Grad Undergrad:

Abbott, S. (2001), *Understanding Analysis*, Springer Verlag, New York, NY.

Ash, R.B. (1993), *Real Variables: with Metric Space Topology*, IEEE Press, New York, NY. Available from (www.math.uiuc.edu/~r-ash/).

Bartle, R.G., and Sherbert, D.R. (2000), *The Introduction to Real Analysis*, 3rd ed., Wiley, New York, NY.

Gaughan, E.D. (1993), *Introduction to Analysis*, 4th ed., Thomson Brooks/Cole, Belmont, CA.

Rosenlicht, M. (1985), *Introduction to Analysis*, Dover, New York, NY.

Ross, K.A. (1980), *Elementary Analysis: The Theory of Calculus*, Springer–Verlag, New York, NY.

Rudin, W. (1964), *Principles of Mathematical Analysis*, 2nd ed., McGraw–Hill, New York, NY.

Wade, W.R. (2004), *Introduction to Analysis*, 3rd ed., Pearson/Prentice Hall, Upper Saddle River, NJ.

Math 471, Nonlinear Programming = Optimization Theory

Bertsekas, D.P. (1999), *Nonlinear Programming*, 2nd ed., Athena Scientific, Nashua, NH.

Peressini, A.L., Sullivan, F.E., and Uhl, J.J. (1988), *The Mathematics of Nonlinear Programming*, Springer–Verlag, New York, NY.

Sundaram, R.K. (1996), *A First Course in Optimization Theory*, Cambridge University Press, Cambridge, UK.

Math 473A, Reliability and Survival Analysis, Grad Undergrad level:

Allison, P.D. (1995), *Survival Analysis Using SAS: A Practical Guide*, SAS Institute, Cary, NC.

Collett, D. (2003), *Modelling Survival Data in Medical Research*, 2nd ed., Chapman & Hall/CRC, Boca Raton, FL.

Hosmer, D.W., Lemeshow, S., and May, S. (2008), *Applied Survival Analysis: Regression Modeling of Time to Event Data*, 2nd ed., Wiley, New York, NY.

Klein, J.P., and Moeschberger, M.L. (1998), *Survival Analysis*, Springer-Verlag, New York, NY

Meeker, W.Q., and Escobar, L.A. (1998), *Statistical Methods for Reliability Data*, Wiley, New York, NY.

Smith, P.J. (2002), *Analysis of Failure and Survival Data*, Chapman and Hall /CRC, Boca Raton, FL.

Also see Chapter 16 from Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (www.math.siu.edu/olive/regbk.htm).

Math 473B, Time Series Analysis, Grad Undergrad level:

Brockwell, P.J., and Davis, R.A. (2002), *Introduction to Time Series and Forecasting*, 2nd ed., Springer, New York, NY.

Chatfield, C. (2003), *The Analysis of Time Series: An Introduction*, 6th ed., Chapman & Hall/CRC Press, Boca Rotan, FL.

Cryer, J.D., and Chan, K.-S. (2008), *Time Series Analysis: with Applications in R*, 2nd ed., Springer, New York, NY

Shumway, R.H., and Stoffer, D.S. (2006), *Time Series Analysis and Its Applications: With R Examples*, 2nd ed., Springer, New York, NY.

Math 475, Numerical Analysis, Grad Undergrad level:

Atkinson, K. (1989), *An Introduction to Numerical Analysis*, 2nd ed., Wiley, New York, NY.

Atkinson, K., and Han, W. (2003), *Elementary Numerical Analysis*, 3rd ed., Wiley, New York, NY.

Burden, R.L., and Faires, J.D. (2004), *Numerical Analysis*, 8th ed., Brooks Cole, Pacific Grove, CA.

Hildebrand, F.B. (1987), *Introduction to Numerical Analysis*, 2nd ed., Dover, New York, NY.

Isaacson, E., and Keller, H.B. (1994), *Analysis of Numerical Methods*, Dover, New York, NY.

Kincaid, D.R., and Cheney, E.W. (2001), *Numerical Analysis: Mathematics of Scientific Computing*, 3rd ed., Brooks Cole, Pacific Grove, CA.

Ralston, A., and Rabinowitz, P. (2001), *A First Course in Numerical Analysis*, 2nd ed., Dover, New York, NY.

Math 480, Calculus Based Introduction to Probability: Grad Undergrad level:

Ash, C. (1993), *The Probability Tutoring Book : an Intuitive Course for Engineers and Scientists (and Everyone Else!)*, IEEE Press, Piscataway, NJ.

Hoel, P.G., Port, S.C., and Stone, C.J. (1971), *Introduction to Probability Theory*, Houghton Mifflin, Boston, MA.

Parzen, E. (1960), *Modern Probability Theory and Its Applications*, Wiley, New York, NY.

Ross, S. (1984), *A First Course in Probability*, Macmillan Publishing, New York, NY.

Ross, S. (1989), *Introduction to Probability Models*, Academic Press, San Diego, CA.

Math 481, Introduction to Stochastic Processes, Grad Undergrad level:

Grimmett, G.R., and Stirzaker, D.R. (2001), *Probability and Random Processes*, Oxford University Press, Oxford, UK.

Hoel, P.G., Port, S.C., and Stone, C.J. (1972), *Introduction to Stochastic Processes*, Houghton Mifflin, Boston, MA.

Karlin, S., and Taylor, H.M. (1975), *A First Course in Stochastic Processes*, 2nd ed., Academic Press, San Diego, CA.

Parzen, E. (1962), *Stochastic Processes*, Holden-Day, San Francisco, CA.

Calculus based Introduction to Statistics, Undergrad level:

Dekking, F.M., Kraaikamp, C., Lopuhaä, H.P., and Meester, L.E. (2005), *A Modern Introduction to Probability and Statistics Understanding Why and How*, Springer-Verlag, London, UK.

Math 483, Calculus based Introduction to Statistics, Grad Undergrad level:

Hogg, R.V., and Tanis, E.A. (2005), *Probability and Statistical Inference*, 7th ed., Prentice Hall, Englewood Cliffs, NJ.

Larsen, R.J., and Marx, M.L. (2001), *Introduction to Mathematical Statistics and Its Applications*, 3rd Ed., Prentice Hall, Upper Saddle River, NJ.

Wackerly, D.D., Mendenhall, W., and Scheaffer, R.L., (2008), *Mathematical Statistics with Applications*, 7th ed., Thomson Brooks/Cole, Belmont, CA.

Walpole, R.E., Myers, R.H., Myers, S.L., and Ye, K. (2002), *Probability & Statistics for Engineers & Scientists*, 7th ed., Prentice Hall, Upper Saddle River, NJ.

Intermediate Statistics Texts, Grad Undergrad with level between Math 483 and 580

DeGroot, M.H., and Schervish, M.J. (2001), *Probability and Statistics*, 3rd ed., Addison-Wesley Publishing Company, Reading, MA.

Hogg, R.V., Craig, A.T., and McKean, J.W. (2004), *Introduction to Mathematical Statistics*, 5th ed., Prentice Hall, Englewood Cliffs, NJ.

Rice, J. (1994), *Mathematical Statistics and Data Analysis*, 2nd ed, Duxbury, Belmont, CA.

Math 484, Regression, Grad Undergrad level:

Cook, R.D., and Weisberg, S. (1999), *Applied Regression Including Computing and Graphics*, Wiley, New York, NY.

Draper, N.R., and Smith, H. (1998), *Applied Regression Analysis*, 3rd Ed., Wiley, New York, NY.

Fox, J. (1997), *Applied Regression Analysis, Linear Models, and Related Methods*, Sage Publications, Thousand Oaks, CA.

Hamilton, L.C. (1992), *Regression with Graphics A Second Course in Applied Statistics*, Wadsworth, Belmont, CA.

Neter, J., Kutner, M.H., Nachtsheim, C.J., and Wasserman, W. (1996), *Applied Linear Statistical Models*, 4th ed., WcGraw–Hill, Boston, MA.

Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (www.math.siu.edu/olive/regbk.htm).

Weisberg, S., (2005), *Applied Linear Regression*, 3rd ed., Wiley, New York, NY.

Math 485, Categorical Data Analysis, Grad Undergrad level:

Agresti, A. (2007), *An Introduction to Categorical Data Analysis*, 2nd ed., Wiley, Hoboken, NJ.

Agresti, A. (2002), *Categorical Data Analysis*, 2nd ed., Wiley, Hoboken, NJ.

Simonoff, J.S. (2003), *Analyzing Categorical Data*, Springer-Verlag, New York, NY.

Math 485, Statistical Sampling Theory, Grad Undergrad level:

Mendenhall, W., Ott, L. and Scheaffer, R.L. (1971), *Elementary Survey Sampling*, Wadsworth, Belmont, CA.

Math 501, Real Analysis, PhD level:

Gelbaum, B.R., and Olmsted, J.M.H. (1964), *Counterexamples in Analysis*, Holden–Day, San Francisco, CA. (Now by Dover.)

Royden, H.L., and Fitzpatrick, P. (2007), *Real Analysis*, 4th ed., Prentice Hall, Englewood Cliffs, NJ.

Spiegel, M.R. (1969), *Schaum’s Outline of Theory and Problems of Real Variables*, McGraw–Hill, New York, NY.

Math 502, Real and Functional Analysis, PhD level:

Folland, G.B. (1984), *Real Analysis Modern Techniques and Their Application*, Wiley, New York, NY.

Friedman, A. (1982), *Foundations of Modern Analysis*, Dover, New York, NY.

Haaser, N.B., and Sullivan, J.A. (1991), *Real Analysis*, Dover, New York, NY.

Kolmogorov, A.N., and Fomin, S.V. (1975), *Introduction to Real Analysis*, Dover, New York, NY.

Rudin, W. (1986), *Real and Complex Analysis*, 3rd ed., McGraw Hill, New York, NY.

Math 575, Numerical Linear Algebra, MS level:

Datta, B.N. (1995), *Numerical Linear Algebra and Applications*, Brooks/Cole Publishing Company, Pacific Grove, CA.

Gentle, J.E. (1998), *Numerical Linear Algebra for Applications in Statistics*, Springer–Verlag, New York, NY.

Golub, G.H., and Van Loan, C.F. (1989), *Matrix Computations*, 2nd ed., John Hopkins University Press, Baltimore, MD.

Trefethen, L.N., and Bau, D. (1997), *Numerical Linear Algebra*, SIAM, Philadelphia, PA.

Math 580, Statistical Inference, MS Level:

Casella, G., and Berger, R.L. (2002), *Statistical Inference*, 2nd ed., Wadsworth Inc., Belmont, CA.

Bickel, P.J., and Doksum, K.A. (2007), *Mathematical Statistics: Basic Ideas and Selected Topics*, Vol. 1., 2nd ed., Updated Printing, Pearson Prentice Hall, Upper Saddle River, NJ. (1st edition is better)

Mukhopadhyay, N. (2000), *Probability and Statistical Inference*, Marcel Dekker Inc., New York, NY.

Olive, D.J. (2010), *A Course in Statistical Theory*, available from (www.math.siu.edu/olive/infbook.htm).

Math 581, Probability and Measure, PhD level:

Ash, R.B., and Doleans-Dade, C.A. (1999), *Probability and Measure Theory*, 2nd ed., Academic Press, San Diego, CA.

Billingsley, P. (1995), *Probability and Measure*, 3rd ed., Wiley, New York, NY.

Capiński, M., and Kopp, P.E. (2004), *Measure, Integral and Probability*, 2nd ed., Springer-Verlag, London, UK.

Dudley, R.M. (2002), *Real Analysis and Probability*, Cambridge University Press, Cambridge, UK.

Durrett, R. (1995), *Probability, Theory and Examples*, 2nd ed., Duxbury Press, Belmont, CA.

Feller, W. (1971), *An Introduction to Probability Theory and Its Applications*, Vol. II, 2nd ed., Wiley, New York, NY.

Gnedenko, B.V. (1989), *Theory of Probability*, 5th ed., Chelsea Publishers, Providence, RI.

Pollard, D. (2001), *A User's Guide to Measure Theoretic Probability*, Cambridge University Press, Cambridge, UK.

Rényi, A., (2007), *Probability Theory*, Dover, New York, NY.

Resnick, S. (1999), *A Probability Path*, Birkhauser, Boston, MA.

Rosenthal, J.S. (2006), *A First Look at Rigorous Probability Theory*, 2nd ed., World Scientific, Singapore.

Shiryaev, A.N. (1996), *Probability*, 2nd ed. Springer Verlag, New York, NY.

Stoyanov, J., Mirazchiiski, I., Ignatov, Z., and Tanushev, M. (1989), *Exercise Manual in Probability Theory*, Kluwar Academic Publishers, Boston, MA.

Design of Experiments, Grad Undergrad level:

Box, G.E.P, Hunter, J.S., and Hunter, W.G. (2005), *Statistics for Experimenters*, 2nd ed., Wiley, New York, NY.

Cobb, G.W. (1998), *Introduction to Design and Analysis of Experiments*, Key College Publishing, Emeryville, CA.

Kirk, R.E. (1982), *Experimental Design: Procedures for the Behavioral Sciences*, 2nd ed., Brooks/Cole Publishing Company, Belmont, CA.

Kuehl, R.O. (1994), *Statistical Principles of Research Design and Analysis*, Duxbury Press, Belmont, CA.

Ledolter, J., and Swersey, A.J. (2007), *Testing 1-2-3 Experimental Design with Applications in Marketing and Service Operations*, Stanford University Press, Stanford, CA.

Montgomery, D.C. (2005), *Design and Analysis of Experiments*, 6th ed., Wiley, New York, NY.

Oehlert, G.W. (2000), *A First Course in Design and Analysis of Experiments*, W.H. Freeman, New York, NY.

Also, see chapters 5-9 of Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (www.math.siu.edu/olive/regbk.htm).

Actuarial Science, Grad Undergrad level:

A) **Actuarial Mathematics-Construction and Evaluation of Actuarial Models** (2 semesters)

Klugman, S.A.; Panjer, H.H.; and Willmot, G.E., (2008) *Loss Models: From Data to Decisions*, 3rd ed., Wiley, New York, NY.

B) **Actuarial Mathematics-Models for Lifetime Contingencies** (2 semesters)

Bowers, N.L., Gerber, H.U., Hickman, J.C., Jones, D.A. and Nesbitt, C.J. (1997), *Actuarial Mathematics*, 2nd ed., ACTEX Publications, Winsted, CT.

Cunningham, R.J., Herzog, T.N., and London, R.L. (2009), *Models for Quantifying Risk*, 3rd edition, ACTEX Publications, Winsted, CT.

C) **Financial Mathematics for Actuaries-Interest Theory**

Broverman, S.A. (2008), *Mathematics of Investment and Credit*, 4th ed., ACTEX Publications, Winsted, CT.

Daniel, J.W. and Vaaler, L.J.F. (2009), *Mathematical Interest Theory*, 2nd ed., The Mathematical Association of America, Washington, DC.

Kellison, S.G. (2008), *Theory of Interest*, 3rd ed., Irwin/McGraw-Hill, New York, NY.

Ruckman, C., and Francis, J. (2005), *Financial Mathematics: a Practical Guide for Actuaries and Other Business Professionals*, 2nd ed., BPP Professional Education, Wheaton, CT.

D) **Financial Mathematics for Actuaries-Financial Economics** (2 semesters)

McDonald, R.L. (2009), *Derivative Markets*, 3rd ed., Addison Wesley, Old Tappan, NJ.

Generalized Linear Models, Grad Undergrad level:

Myers, R.H., Montgomery, D.C., and Vining, G.G. (2002), *Generalized Linear Models with Applications in Engineering and the Sciences*, Wiley, New York, NY.

Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (www.math.siu.edu/olive/regbk.htm).

Large Sample Theory, PhD level:

Ferguson, T.S. (1996), *A Course in Large Sample Theory*, Chapman & Hall, New York, NY.

Lehmann, E.L. (1999), *Elements of Large-Sample Theory*, Springer-Verlag, New York, NY.

Sen, P.K., and Singer, J.M. (1993), *Large Sample Methods in Statistics: An Introduction with Applications*, Chapman & Hall, New York, NY.

Serfling, R.J. (1980), *Approximation Theorems of Mathematical Statistics*, Wiley, New York, NY.

White, H. (1984), *Asymptotic Theory for Econometricians*, Academic Press, San Diego, CA.

Linear Models, MS level:

Christensen, R. (2002), *Plane Answers to Complex Questions: the Theory of Linear Models*, 3rd ed., Springer-Verlag, New York, NY.

Seber, G.A.F., and Lee, A.J. (2003), *Linear Regression Analysis*, 2nd ed., Wiley, New York, NY.

Logistic Regression, Grad Undergrad level:

Collett, D. (1999), *Modelling Binary Data*, Chapman & Hall/CRC, Boca Raton, Florida.

Hosmer, D.W., and Lemeshow, S. (2000), *Applied Logistic Regression*, 2nd ed., Wiley, New York, NY.

Also, see chapter 10 of Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (www.math.siu.edu/olive/regbk.htm).

Multivariate Analysis, Grad Undergrad level:

Johnson, R.A., and Wichern, D.W. (1988), *Applied Multivariate Statistical Analysis*, 2nd ed., Prentice Hall, Englewood Cliffs, NJ.

Mardia, K.V., Kent, J.T., and Bibby, J.M. (1979), *Multivariate Analysis*, Academic Press, London, UK.

Press, S.J. (2005), *Applied Multivariate Analysis: Using Bayesian and Frequentist Methods of Inference*, 2nd ed., Dover, New York, NY.

Pattern Recognition, MS level:

Bishop, C.M. (2006), *Pattern Recognition and Machine Learning*, Springer, Singapore.

Duda, R.O., Hart, P.E., Stork, D.G. (2000), *Pattern Classification*, 2nd ed., Wiley, New York, NY.

Regression Graphics, PhD level:

Cook, R.D. (1998), *Regression Graphics: Ideas for Studying Regression Through Graphics*, Wiley, New York, NY.

Robust Statistics, MS level:

Olive D.J. (2009), *Applied Robust Statistics*, available from (www.math.siu.edu/olive/ol-bookp.htm).

Important Books for Statisticians:

Agresti, A. (2002), *Categorical Data Analysis*, 2nd ed., Wiley, Hoboken, NJ.

Box, G.E.P, Hunter, J.S., and Hunter, W.G. (2005), *Statistics for Experimenters*, 2nd ed., Wiley, New York, NY.

Casella, G., and Berger, R.L. (2002), *Statistical Inference*, 2nd ed., Wadsworth Inc., Belmont, CA.

Lehmann, E.L., and Casella, G. (2003), *Theory of Point Estimation*, 2nd ed., Wiley, New York, NY.

Lehmann, E.L., and Romano, J.P. (2005), *Testing Statistical Hypotheses*, 3rd ed., Springer Verlag, New York, NY.