Jan., 2021.

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

Lorayne, H., and Lucas, J. (1974), *The Memory Book*, Ballantine Books, New York, NY. (Useful for memorizing exam material.)

High Quality Online Texts and Notes:

Also see (www.ebyte.it/library/refs/MathOnlineTexts.html), (http://people.math.gatech.edu/∼cain/textbooks/onlinebooks.html), (http://www.openculture.com/free-math-textbooks), (http://www.sciencebooksonline.info/mathematics.html) and (http://statlink.tripod.com/).

Carol Ash's website (https://faculty.math.illinois.edu/∼ash/) has good notes for advanced calculus, differential equations, discrete math, and linear algebra.

Robert Ash's website (https://faculty.math.illinois.edu/∼r-ash/) has some good notes and books including the three below.

Ash, R.B. (2008), *Basic Probability Theory*, Dover, Mineola, NY. Online at (https://faculty.math.illinois.edu/∼r-ash/).

Ash, R.B. (1993), *Real Variables: with Metric Space Topology*, IEEE Press, NY, available from (https://faculty.math.illinois.edu/∼r-ash/).

Ash, R.B., and Novinger, W.P. (2004), *Complex Variables*, available from (https://faculty.math.illinois.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Li, K.C. (2000), *High Dimensional Data Analysis via the SIR/PHD Approach,* unpublished manuscript available from (www.stat.ucla.edu/∼kcli/).

Marden, J.I. (2003), *Notes on Analysis of Variance: Old School*, course notes from (http://istics.net/pdfs/anova.pdf).

Marden, J.I. (2006), *Notes on Statistical Learning*, course notes from (http://istics.net/pdfs/statlearn.pdf).

Marden, J.I. (2012), *Mathematical Statistics, Old School*, course notes from (http://istics.net/pdfs/mathstat.pdf).

Marden, J.I. (2012), *Multivariate Statistics*, course notes from (http://istics.net/pdfs/multivariate.pdf).

Oehlert, G.W. (2000), *A First Course in Design and Analysis of Experiments*, W.H. Freeman, New York, NY, (out of print), available from (http://users.stat.umn.edu/∼gary/Book.html).

Olive, D.J. (2008), *Applied Robust Statistics*, available from (http://parker.ad.siu.edu/Olive/ol-bookp.htm).

Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (http://parker.ad.siu.edu/Olive/regbk.htm).

Olive, D.J. (2008), *A Course in Statistical Theory*, available from (http://parker.ad.siu.edu/Olive/infbook.htm).

Olive, D.J. (2020a), *Prediction and Statistical Learning*, online course notes, see (http://parker.ad.siu.edu/Olive/slearnbk.htm).

Olive, D.J. (2020b), *Theory for Linear Models*, online course notes, (http://parker.ad.siu.edu/Olive/linmodbk.htm).

Olive, D.J. (2020c), *Robust Statistics*, online course notes, (http://parker.ad.siu.edu/Olive/robbook.htm).

Olive, D.J. (2020d), *Survival Analysis*, online course notes, see (http://parker.ad.siu.edu/Olive/survbk.htm).

Not high quality:

Olive, D.J. (2013), *Robust Multivariate Analysis*, available from (http://parker.ad.siu.edu/Olive/multbk.htm).

These notes are a preprint of the Olive (2017) text with the same title.

Calculus review or self study books:

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.

Banner, A. (2007), *The Calculus Lifesaver: All the Tools You Need to Excel at Calculus*, Princeton University Press, Princeton, NJ.

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

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

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

Calculus, Undergrad level:

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

Salas, S.L., and Hille, E. (1982), *Calculus, One and Several Variables*, 4th ed., Wiley, New York, NY.

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

Stewart, J. (1999), *Calculus, Early Transcendentals*, 4th ed., Brooks/Cole Publishing, Pacific Grove, CA.

Math 221, Introduction to Linear Algebra, Undergrad level

Anton, H., and Rorres, C. (1994), *Elementary Linear Algebra, Applications Version*, 7th ed., Wiley, New York, NY.

Leon, S.J. (1986), *Linear Algebra with Applications*, 2nd ed., Macmillan Publishing Company, New York, NY.

See (https://faculty.math.illinois.edu/~ash/).

Math 302, Introduction to Proofs, Undergrad level:

Chartrand, G., Polimeni, A.D., and Zhang, P. (2012), *Mathematical Proofs: A Transition to Advanced Mathematics*, 3rd ed., Pearson, Upper Saddle River, NJ.

Eccles, P.J. (1997), *An Introduction to Mathematical Reasoning*, Cambridge University Press, New York, NY.

Morash, R.P. (1987), *Bridge to Abstract Mathematics: Mathematical Proofs and Structures*, Random House, New York, NY.

Smith, D., Eggen, M., and St. Andre, R. (1986), *A Transition to Advanced Mathematics*, Brooks/Cole, Monterey, CA.

Solow, D. (2002), *How to Read and Do Proofs*, Wiley, New York, NY.

Spivak, M. (2008), *Calculus*, 4th ed., Publish or Perish, Houston, TX.

Velleman, D.J. (2006), *How to Prove It: A Structured Approach*, 2nd ed., Cambridge University Press, New York, NY.

Math 305, Differential Equations:
See (https://faculty.math.illinois.edu/∼ash/).

Math 319, Abstract Algebra:
See (https://faculty.math.illinois.edu/∼r-ash/).

Math 349, Discrete Math:
See (https://faculty.math.illinois.edu/∼ash/).

Actuarial Science, Grad Undergrad level, Math 400-404:

Math 400, Interest Theory and Financial Derivatives:

Broverman, S.A. (2017), *Mathematics of Investment and Credit*, 7th ed., ACTEX Publications, Winsted, CT.

Cherry, H., and Govett, R. (2011), *ASM Study Manual for Exam FM/Exam 2,* 11th ed., (see www.studymanuals.com).

Francis, J., and Ruckman, C., (2016), *Interest Theory–Financial Mathematics and Deterministic Valuation*, ActuarialBrew.

McDonald, R.L. (2012), *Derivatives Markets*, 3rd ed., Addison Wesley, Old Tappan, NJ. ch. 1-5, 8.

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

Chan, W.S., and Tse, Y.K. (2013), *Financial Mathematics for Actuaries*, updated ed., McGraw-Hill, New York, NY.

Kellison, S.G. (2009), *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, Farmington, CT.

Math 401 and 402, Life Contingencies I,II:

Camilli, S.J., Duncan, I., and London, R.L. (2014), *Models for Quantifying Risk*, 6th ed. ACTEX Publications, Winsted, CT.

Cunningham, R.J., Herzog, T.N., and London, R.L. (2012), *Models for Quantifying Risk*, 5th edition, ACTEX Publications, Winsted, CT.

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.

Dickson, D.C.M., Hardy, M.R., and Waters, H.R. (2009), *Actuarial Mathematics for Life Contingent Risks*, Cambridge University Press, Cambridge, UK.

Weishaus, A. (2010), *ASM Study Manual for SOA Exam MLC*, 10th ed., (see www.studymanuals.com).

Math 403 and 404, Loss Models I,II:

Klugman, S.A., Panjer, H.H., and Wilmot, G.E. (2008, 2012), *Loss Models: from Data to Decisions*, 3rd and 4th ed., New York, NY, Wiley.

Kellison, S.G., and London, R.L. (2011), *Risk Models and Their Estimation*, ACTEX Publications, Winsted, CT.

Weishaus, A. (2011), *ASM Study Manual Exam C/Exam 4*, 13th ed., (see www.studymanuals.com).

Math 430, Topology, Grad Undergrad level:

Croom, F.P. (2016) *Principles of Topology*, Dover, Mineola, 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.

See (https://faculty.math.illinois.edu/∼ash/).

Math 352, Theory of Calculus, Grad Undergrad level:

Ash, R.B. (1993), *Real Variables: with Metric Space Topology*, IEEE Press, New York, NY. Available from (https://faculty.math.illinois.edu/∼r-ash/), the book is actually a Math 452 text.

Gaughan, E.D. (2009), *Introduction to Analysis*, 5th ed., American Mathematical Society, Providence, RI.

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

Math 452, Introduction to Analysis, Grad Undergrad level:

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

Apostle, T.A., (1974), *Mathematical Analysis*, 2nd ed., Addison Wesley, Reading, MA.

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

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

Fitzpatrick, P.M. (2009), *Advanced Calculus*, 2nd ed., American Mathematical Society, Providence, RI.

Lay, S.R. (2004), *Analysis: With Introduction to Proof*, 4th ed., Prentice Hall, Upper Saddle River, NJ.

Marsden, J.E., and Hoffman, M.J. (1993), *Elementary Classical Analysis*, 2nd ed., W.H. Freeman, New York, NY.

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

Math 455, Complex Variables:

Brown, J.W., and Churchill, R.V. (2014), *Complex Variables and Applications*, 9th ed., McGraw-Hill, New York, NY.

Spiegel, M., Lipschutz, S. , et al. (2009), *Schaum's Outline of Complex Variables*, McGraw-Hill, New York, NY.

See (https://faculty.math.illinois.edu/∼r-ash/).

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 473, Reliability and Survival Analysis, Grad Undergrad level:

Allison, P.D. (2010), *Survival Analysis Using SAS: A Practical Guide,* 2nd ed., SAS Institute, Cary, NC.

Collett, D. (2003, 2015), *Modelling Survival Data in Medical Research*, 2nd and 3rd 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. (2003), *Survival Analysis*, 2nd ed., Springer-Verlag, New York, NY.

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

Olive, D.J. (2020d), *Survival Analysis*, online course notes, see (http://parker.ad.siu.edu/Olive/survbk.htm).

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

Math 474, 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.

Cowpertwait, P.S.P., and Metcalfe, A.V. (2009), *Introductory Time Series with R*, Springer Science, New York, NY.

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., Faires, J.D., and Burden, A.M. (2016), *Numerical Analysis*, 10th ed., Cenage Learning, Boston, MA.

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.

Probability, Undergrad level:

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

Ash, R.B. (2008), *Basic Probability Theory*, Dover, Mineola, NY. Online at (https://faculty.math.illinois.edu/~r-ash/).

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

Hassett, M.J., and Stewart, (2006), *Probability for Risk Management*, 2nd ed., AC-TEX Publications, Winsted, CT.

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. (1992), *Applied Probability Models with Optimization*, Dover, Mineola, NY.

Ross, S. (2012), *A First Course in Probability*, 9th ed., Pearson/Prentice Hall, Upper Saddle River, NJ.

Ross, S. (2014), *Introduction to Probability Models*, 11th ed., Academic Press, San Diego, CA.

Woodroofe, M. (1975), *Probability With Applications*, McGraw-Hill, New York, NY.

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:

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

Johnson, R., Miller, I., and Freund, J. (2004), *Miller & Freund's Probability and Statistics for Engineers*, 7th ed., Prentice Hall, Upper Saddle River, NJ.

Larsen, R.J., and Marx, M.L. (2011), *Introduction to Mathematical Statistics and Its Applications*, 5th 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., (2011), *Probability & Statistics for Engineers & Scientists,* 9th ed., Prentice Hall, Upper Saddle River, NJ. Walpole, R.E., Myers, R.H., Myers, S.L., and Ye, K. (2002),

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

DeGroot, M.H., and Schervish, M.J. (2011), *Probability and Statistics,* 4th ed., Addison-Wesley Publishing Company, Reading, MA.

Hogg, R.V., McKean, J.W., and Craig, A.T. (2012), *Introduction to Mathematical Statistics,* 7th 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. (2008), *Applied Regression Analysis and Generalized Linear Models*, 2nd ed., Sage Publications, Thousand Oaks, CA.

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

Kutner, M.H., Nachtsheim, C.J., Neter, J. and Li, W. (2005), *Applied Linear Statistical Models,* 5th ed., WcGraw-Hill/Irwin, Boston, MA.

Olive, D.J. (2010), *Multiple Linear and 1D Regression*, available from (http://parker.ad.siu.edu/Olive/regbk.htm).

Olive, D.J. (2017a), *Linear Regression*, Springer, New York, NY. The Springer eBook is available on SpringerLink, Springer's online platform, (http://dx.doi.org/10.1007/978-3-319-55252-1).

Weisberg, S., (2014), *Applied Linear Regression*, 4th 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. (2012), *Categorical Data Analysis*, 3rd 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.

Books with level between Math 452 and Royden Math 501:

Pugh, C.C. (2002), *Real Mathematical Analysis*, Springer, New York, NY.

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

Shilov, G.E. (1973), *Elementary Real and Complex Analysis*, Dover, New York, NY.

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: Lebesgue Measure and Integration With Applications to Fourier Series*, 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 Analyis*, 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. (2008), *A Course in Statistical Theory*, available from
(http://parker.ad.siu.edu/Olive/infbook.htm).

Olive, D.J. (2014), *Statistical Theory and Inference*, Springer, New York, NY. The Springer eBook is available on SpringerLink, Springer's online platform,
(http://dx.doi.org/10.1007/978-3-319-04972-4).

Also see Marden, J.I. (2012), *Mathematical Statistics, Old School*, course notes from
(http://istics.net/pdfs/mathstat.pdf).

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.

Math 584 Linear Models, MS level:

Christensen, R. (2011), *Plane Answers to Complex Questions: the Theory of Linear Models,* 4th ed., Springer, New York, NY.

Graybill, F.A. (2000), *Theory and Application of the Linear Model,* Brooks/Cole, Pacific Grove, CA. (reprint of a 1976 text with the same title)

Myers, R.H., and Milton, J.S. (1990), *A First Course in the Theory of Linear Statistical Models*, Duxbury, Belmont, CA.

Olive, D.J. (2020b), *Theory for Linear Models*, online course notes, (http://parker.ad.siu.edu/Olive/linmodbk.htm).

Ravishanker, N. and Dey, D.K. (2002), *A First Course in Linear Model Theory,* Chapman and Hall/CRC, Boca Raton, FL.

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

Math 585 Multivariate Analysis, Grad Undergrad level:

Johnson, R.A., and Wichern, D.W. (2007), *Applied Multivariate Statistical Analysis,* 6th ed., Prentice Hall, Englewood Cliffs, NJ.

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

Olive, D.J. (2013), *Robust Multivariate Analysis*, available from (http://parker.ad.siu.edu/Olive/multbk.htm).

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

Also see Marden, J.I. (2012), *Multivariate Statistics*, course notes from (http://istics.net/pdfs/multivariate.pdf).

Math 586, Statistical Learning, MS level: (top 4 may be best)

James, G., Witten, D., Hastie, T., and Tibshirani, R. (2013), *An Introduction to Statistical Learning With Applications in R*, Springer, New York, NY.

Hastie, T., Tibshirani, R., and Friedman, J. (2009), *The Elements of Statistical Learning: Data Mining, Inference and Prediction*, 2nd ed., Springer, New York, NY.

Hastie, T., Tibshirani, R., and Wainwright, M. (2015), *Statistical Learning with Sparsity: the Lasso and Generalizations*, CRC Press Taylor & Francis, Boca Raton, FL.

Kuhn, M., and Johnson, K. (2013), *Applied Predictive Modeling*, Springer, New York, NY.

Berk, R.A. (2008), *Statistical Learning From a Regression Perspective*, Springer, New York, NY.

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.

Hand, D.J., Mannila, H., and Smyth, P. (2001), *Principles of Data Mining*, MIT Press, Cambridge, MA.

Malley, J.D., Malley, K.G., Pajevec, S. (2010), *Statistical Learning for Biomedical Data,* Cambridge University Press, New York, NY.

Olive, D.J. (2020a), *Prediction and Statistical Learning*, online course notes, see (http://parker.ad.siu.edu/Olive/slearnbk.htm).

Witten, I.A., Frank, E., and Hall, M.A. (2011), *Data Mining: Practical Machine Learning Tools and Techniques*, 3rd ed., Elsevier, Boston, MA.

Also see Marden, J.I. (2006), *Notes on Statistical Learning*, course notes from (http://istics.net/pdfs/statlearn.pdf), and

Math 586, Statistical Computing, MS level:

Braun, W.J., and Murdoch, D.J. (2007), *A First Course in Statistical Programming with R*, Cambridge University Press, New York, NY.

Gentle, J.E. (2009), *Computational Statistics*, Springer, New York, NY.

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