

## List of Essential Books

**Dept. of Statistics**  
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### Introductory Statistics

**Textbooks:**

1. Weiss N (2007). Introductory Statistics, 7th edition. Addison Wesley.

**Reference Books:**

1. Douglas A. Lind ,William G. Marchal, Samuel A.Wathen (2022): Statistical Techniques in Business and Economics, 18th ed. Irwin.
2. Mann PS (2020). Introduction to Statistics, 10th edition. John Wiley & Sons Inc.
- Newbold P (2004). Statistics for Business and Economics, 3rd edition. Prentice-Hall.

### Elementary Probability

**Textbooks:**

1. Ross SM (2009). A First Course in Probability, 8th edition. Prentice-Hall.

**Reference Books:**

1. Lipschutz, S. and J. Schiller (2011). *Introduction to Probability and Statistics*, McGraw-Hill, N.Y.
2. Stirzaker D (2003). *Elementary Probability*, 2nd edition. Cambridge.
3. Blitzstein JK and Hwang J (2019). *Introduction to Probability*, 2nd edition. Springer.

### Linear Algebra

**Textbooks:**

1. Anton H and Rorres C (2013). *Elementary Linear Algebra*, 11th edition. Wiley.

**Reference Books:**

1. Banerjee S and Roy A (2014). *Linear Algebra and Matrix Analysis for Statistics*. Chapman and Hall/CRC
2. Hadley, G. (1993): *Linear Algebra*, Addison Wesley Company, N.Y.

### Analytical Geometry and Calculus

**Textbooks:**

1. Anton H (1995). *Calculus with Analytic Geometry*, 5th edition. Wiley.

**Reference Books:**

1. Stewart J (2015). *Calculus: Early Transcendentals*, 9th edition. Cengage Learning.
2. Chris McMullen (2018). *Essential Calculus Skills Practice Workbook with Full Solutions*. Zishka Publishing

### Principles of Economics

**Textbooks:**

1. Samuelson PA and Nordhaus WD (2009). *Economics*, 19th edition. McGraw Hill. Reference Books

**Reference Books:**

1. Mankiw NG (2015). *Principles of Economics*, 7th edition. Cengage Learning.
2. Dowling ET (2011). *Introduction to Mathematical Economics*, 3rd edition. McGraw- Hill Education.
3. Newbold P, Carlson W and Thorne B (2012). *Statistics for Business and Economics*, 8th edition. Pearson

## **Bivariate Analysis**

### **Textbooks:**

1. Weiss N (2007). *Introductory Statistics*, 7th edition. Addison Wesley.

### **Reference Books:**

1. Mann PS (2020). *Introduction to Statistics*, 10th edition. John Wiley & Sons Inc.
2. Newbold P (2004). *Statistics for Business and Economics*, 3rd edition. Prentice-Hall.
3. Witten IH, Frank E, and Hall MA (2016). *Data Science: An Introduction*. John Wiley & Sons Inc.

## **Probability Distributions**

### **Textbooks:**

1. Devore, J. L. (2002): *Probability and Statistics for Engineering and Sciences*, 5<sup>th</sup> edition, Thomson Books/Cole, USA.
2. Evans, M., Hasting, N. and Peacock, B. (2000): *Statistical Distributions*, 3<sup>rd</sup> edition, Wiley, New York.

### **Reference books:**

1. Hogg, R. V. and Craig, A. T. (2002): *Introduction of Mathematical Statistics*, 5<sup>th</sup> edition, Pearson Education, Asia.
2. Kotz, S., Balakrishnan, N. and Johnson, N. L. (2000): *Continuous Multivariate Distributions: Models and Applications*, Vol. 1, 2<sup>nd</sup> edition, Wiley, New York.

## **Introductory Data Base Management System**

### **Textbooks:**

1. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2011). *Database system concepts*. 7th Edition McGraw-Hil.
2. Ramez Elmasri and Shamkant B. Navathe, *Fundamentals of Database Systems*, Pearson Education, 2008

### **Reference Books:**

1. Teate RM (2021). *SQL for data scientists: A beginner's guide for building datasets for analysis*. Wiley.

## **Algebra and Numerical Analysis**

### **Textbooks:**

1. Stoer, J., & R. Bulirsch (2002). *Introduction to numerical analysis* (Vol. 12). Springer.

### **Reference Books:**

1. Kuo, S. S. (1972): *Computer Applications of Numerical Methods Reading*, Addison-Wiley.
2. Scarborough, J. B. (1966): *Numerical Mathematical Analysis*, 6<sup>th</sup> ed. Johns Hopkins Press, Baltimore.
3. Scheld, F. (1988): *Schaum's Outline of Theory of Problems and Numerical Analysis*, McGraw Hill, Singapore.
4. Sastry, S. S. (1995): *Introductory Methods of Numerical Analysis*, 2<sup>nd</sup> ed. New Delhi, Prentice-Hall.
5. Hildebrand (1984): *Introduction to Numerical Analysis*.

## **Stata and SPSS**

### **Textbooks:**

1. Hamilton LC (2006). *Statistics with Stata*, Thomson Brooks/Cole.
2. Morgan GA, Barrett KC, Leech NL, and Gloeckner GW (2019). *IBM SPSS for Introductory Statistics: Use and Interpretation*, 6<sup>th</sup> edition. Routledge.

### **Reference Books:**

1. Acocck AC (2010). *A Gentle Introduction to Stata*, 6<sup>th</sup> edition. Stata Press.

## **Sampling Distributions**

### **Textbooks:**

1. Hogg, R. V. and A. T. Craig (2002): *Introduction to Mathematical Statistics*, 5th ed., Pearson, Education, Asia.
2. Evans, M., N. Hasting and B. Peacock (2000): *Statistical Distributions*, 3<sup>rd</sup> ed., Wiley, New York.

### **Reference Books:**

1. Robinson EA (2011). *Probability Theory and Applications*. Springer.

## **Statistical Estimation**

### **Textbooks:**

1. Casella, G., & R. L. Berger (2002). *Statistical inference*. Pacific Grove, CA: Duxbury.
2. Hogg RV, McKean J and Craig AT (2019). *Introduction to Mathematical Statistics*, 8th Edition. Pearson.

### **Reference Books:**

1. Lehmann, E.L. and G. Cassela (1998). *Theory of Point estimation*, Springer Verlag, NY.
2. Rao, C. R. (2009). *Linear statistical inference and its applications*. John Wiley & Sons.
3. Kendall & Stuart (2010): *Advanced Theory of Statistics*, Vol.1, 14th ed., Edward Arnold, N.Y. [Volume 01].

## **Test of Hypothesis**

### **Textbooks:**

1. Hogg RV, McKean J and Craig AT (2019). *Introduction to Mathematical Statistics*, 8th Edition. Pearson.
2. Casella, G., & R. L. Berger (2002). *Statistical inference*. Pacific Grove, CA: Duxbury.

### **Reference Books:**

1. Rao, C. R. (2009). *Linear statistical inference and its applications*. John Wiley & Sons.
2. Kendall & Stuart (2010): *Advanced Theory of Statistics*, Vol.1, 14th ed., Edward Arnold, N.Y. [Volume 01].

## **Differential Equations and Complex Variables**

### **Textbooks:**

1. Boelkins, M. R., J. L., Goldberg & M. C. Potter (2009). *Differential equations with linear algebra*. Oxford University Press USA.
2. Ross, S.L. (1989). *Differential Equations*, 4th ed., Wiley, N.Y.

### **Reference Books:**

1. Arendt, W., C. J. Batty, M. Hieber, & F. Neubrander (2011). *Vector-valued Laplace transforms and Cauchy problems*. Springer.
2. Ayres, F. (1997). *Differential Equations*, Schaum's Outline Series, McGraw-Hill, NY.
3. Godge, S.M. (2000). *Differential Equations and Linear Algebra*, Prentice Hall, N.J., USA.

## **Programming with C++ and SQL**

### **Textbooks:**

1. Dietel PJ and Deitel HM (2010). *C How to Program*, 7th edition. Pearson.
2. Beaulieu A (2009). *Learning SQL*, 2nd edition. O'Reilly.

### **Reference Books:**

1. Nell Dale, Chip Weems and Mark Headington (1998). *Programming in C++*, Narosa. London
2. Perry G and Miller D (2014). *C Programming Absolute Beginner's Guide*, 3rd Edition. Que.

## **Regression Analysis**

### **Textbooks:**

1. Weisberg S (2013). *Applied Linear Regression*, 4th edition. Wiley. Reference Books

### **Reference Books:**

1. Montgomery DC, Peck EA, and Vining GG (2012). *Introduction to Linear Regression Analysis*, 5th edition. Wiley and Sons.
2. Draper NR and Smith H (1999). *Applied Regression Analysis*, 3rd edition. Wiley.

## Demography

### Textbooks:

1. Siegel JS and Swanson DA (2004). The Methods and Materials of Demography, 2<sup>nd</sup> edition. Emerald.
2. Swanson, D., & J. S. Siegel (2004). The methods and materials of demography. Elsevier Academic Press.

### Reference Books:

1. Poston Jri. DL, and Bouvier LF (2016). Population and Society: An Introduction to Demography, 2nd edition. Cambridge University Press.
2. BBS and NIPORT, All Demographic Reports.
3. Goldmann, G. (2010). Principles of Demography.

## Real Analysis

### Textbooks:

1. Trench, W. F. (2012): Introduction to Real Analysis, Free Hyperlinked Edition 2.01.

### Reference Books:

1. Goldberger, S (2012):. *Method of Real Analysis*, McGraw Hill, N.Y.
2. Gupta, S. L., Nissha Rani (1993): *Fundamental Real Analysis*, 3rd rev. ed. Vikas
3. Hardy, G.H. (1983): *A First Course in Pure Mathematics*. CUP, London
4. Hobson E. *The Theory of functions of a Real Variable and Theory of Fourier Series*

## Operation Research

### Textbooks:

1. Srinivasan, G. (2012). Operations Research: Principles and Applications, PHI Private Limited.

### Reference Books:

1. Taha H. A. (2009). Operations Research: An Introduction, 10th ed., Prentice Hall, N.Y.

## Programming with R and Python

### Textbooks:

1. Wickham H and Golemund G (2017). R for Data Science: Import, Tidy, Transform, Visualize, and Model Data. O'Reilly.
2. McKinney W. (2022). Python for data analysis: Data wrangling with Pandas, NumPy, and Jupyter, 3rd edition. O'Reilly.

### Reference Books:

1. Wickham H (2019). Advanced R, Second Edition. Chapman & Hall/CRC.
2. Grus, J. (2019). Data science from scratch: First principles with python. O'Reilly.

## Design of Experiments

### Textbooks:

1. Montgomery DC (2019). Design and Analysis of Experiments, 10th edition. Wiley.
2. Cochran and Cox (2000): *Experimental Design*, 2<sup>nd</sup> ed., John Wiley, N.Y.

### Reference Books:

1. Dean AM, Voss AM, and Dragulji c (2017). Design and Analysis of Experiments, 2nd edition. Springer.
2. Gerber, A. S., & D. P. Green (2012). *Field experiments: Design, analysis, and interpretation*. New York: WW Norton.
3. Ryan, T. P., & Morgan, J. P. (2007). *Modern experimental design*. John Wiley & Sons, Inc., Hoboken, New Jersey.

## **Stochastic Processes**

### **Textbooks:**

1. Ross, S.M. (2003): *Introduction to Probability Models*, 8th ed. Academic Press

### **Reference Books:**

1. Ross, S. M. (2001). *Stochastic Processes*, Academic Press, N.Y.
2. Gikhman, I. I., & A. V. Skorokhod (2004). *The Theory of Stochastic Processes*. Springer.

## **Generalized Linear Model**

### **Textbooks:**

1. Dobson AJ and Barnett AG (2008). *An Introduction to Generalized Linear Models*, 3rd edition. Chapman & Hall.
2. McCullagh P and Nelder JA (1989). *Generalized Linear Models*, 2nd edition. CRC Press.

### **Reference Books:**

1. Agresti, A. (2012): *Categorical Data Analysis*, 3rd Edition, John Wiley and Sons, New York.

## **Sampling Techniques**

### **Textbooks:**

1. Thompson SK (2002). *Sampling*. 2nd edition. Wiley.
2. Cochran WG (1977). *Sampling Techniques*, 3rd edition. Wiley.

### **Reference Books:**

1. Lohr SL (1998). *Sampling: Design and Analysis*. Duxbury.
2. Levy PS and Lemeshow S (2008). *Sampling of Populations: Methods and Applications*, 4th edition. Wiley.
3. Rao PSRS (2000). *Sampling Methodologies with Applications*, 1st edition. Chapman & Hall/CRC.

## **Introduction to Data Science**

### **Textbooks:**

1. Witten IH, Frank E, and Hall MA (2016). *Data Science: An Introduction*. John Wiley & Sons Inc.

### **Reference Books:**

1. Bart Baesens, (2014), *Analytics in a Big Data World: The Essential Guide to Data Science and its Applications*, Wiley
2. Hrushikesh Mohanty, Prachet Bhuyan and Deepak Chenthati, (2015), *Big Data a Primer*, Springer.

## **Time Series Analysis**

### **Textbooks:**

1. Jonathan DC and Kung-Sik C (2008). *Time Series Analysis - With Applications in R*. Springer.
2. Spyros M, Steven W and Rob H (1997). *Forecasting – Methods and Applications*, 3rd edition. Wiley.

### **Reference Books:**

1. Chatfield C (2003). *The Analysis of Time Series*, 6th edition. Chapman & Hall.
2. Shumway RH and Stoffer DS (2011). *Time Series Analysis and Its Applications: With R Examples*. Springer.
3. Brockwell PJ and Davis RA (2002). *Introduction to Time Series and Forecasting*. 3rd edition. Springer.

## **Non-Parametric and Robust Statistics**

1. Maronna, R.A., Martin, R. D. and Yohai, V. J. (2006), *Robust Statistics: Theory and Methods*, John Wiley & Sons.

### **References**

- 1 Hampel, F.R., Ronchetti, E.M., Rousseeuw, P.J. and Stahel, W.A. (1986), *Robust Statistics: The Approach Based on Influence Functions*, John Wiley & Sons.
- 2 Huber, P.J. (1981), *Robust Statistics*, John Wiley & Sons.

## **Simulation and Modeling**

### **Textbooks:**

1. Robert, C. and G. Casella (2010). *Introducing Monte Carlo Methods with R*. Springer-Verlag New York.
2. Rubinstein, R.Y. and D. P. Kroese (2017). *Simulation and the Monte Carlo method*. John Wiley & Sons.
3. Lazic, S. E., & H. L. Roche (2012). *Introducing Monte Carlo Methods with R*.

### **Reference Books:**

1. Ross, B. M. (2012): *Simulation*, 5th Edition, Academic Press, USA.
2. Law, A. M., & W. Kelton (2000). *Simulation modeling and analysis*. Mac Graw Hill, Boston, Burr Ridge, USA.
3. Suess, E.A. and B.E. Trumbo (2010). *Introduction to Probability Simulation and Gibbs Sampling with R*, Springer.

## **Statistical Quality Control**

### **Textbooks:**

1. E. L. Grant Richard, R.S. Leavenworth, *Design Statistical Quality Control*, 7th Edition, McGrawHill Pvt Ltd New Delhi, 2011.
2. D. C. Montgomery, *Statistical Quality Control*, 7th Edition, John Wiley Sons, 2012

### **Reference Books:**

1. Banks, J. (1989): *Principles of Quality Control*, John Wiley and Sons, New York.
2. Burr, J. (2002): *Elementary Statistical Quality Control*, Marcel Dekkar, USA.
3. Grant, E. L. (1996): *Statistical Quality Control*, 7<sup>th</sup> edition, McGraw-Hill, New York.
4. Montgomery, D. C. (2002): *Introduction to Statistical Quality Control*, 4<sup>th</sup> edition, John Wiley and Sons, New York.
5. Mukhopadhyaya, P. (1999): *Applied Statistics*, Books and Allied (P) Ltd., India.

## **Econometrics**

### **Textbooks:**

1. Greene WH (2011). *Econometric Analysis*, 7th edition. Prentice Hall. Reference Books

### **Reference Books:**

1. Gujarati DN (2010). *Basic Econometrics*, 5th edition. McGraw-Hill.
2. Wooldridge JM (2010). *Introductory Econometrics: A Modern Approach*, 5th edition. Cengage Learning.

## **Multivariate Distribution**

### **Textbooks:**

1. Hair, J. F., R. L. Tatham, R. E., Anderson & W. Black (2006). *Multivariate data analysis*. Upper Saddle River, NJ: Pearson Prentice Hall.

### **Reference Books:**

1. Johnson, R. A. and Wichern, D. W. (2002): *Applied Multivariate Statistical Analysis*, 5<sup>th</sup> edition, Pearson Education, Asia.

## **Advanced Sampling Techniques**

### **Textbooks:**

1. Cochran WG (1977). *Sampling Techniques*, 3rd edition. Wiley.

### **Reference Books:**

1. Lohr SL (1998). *Sampling: Design and Analysis*. Duxbury.
2. Thompson SK (2012). *Sampling*, 3rd edition. Wiley.
3. Kirk MW (2007). *Introduction to Variance Estimation*, 2nd edition. Wiley.

## **Spatial Statistics**

### **Textbooks:**

1. Wikle, C. K., Zammit-Mangion, A., and Cressie, N. (2019), *Spatio-Temporal Statistics with R*, Boca Raton, FL: Chapman & Hall/CRC.

### **Reference Books:**

1. Roger S. (2021): *Applied Spatial Data Analysis with R*, 1<sup>st</sup> edition. WILEY, Springer.

## **Health Informatics**

### **Textbooks:**

1. Joshi A (2017). *Population Health Informatics: Driving Evidence-Based Solutions Into Practice*, 2<sup>nd</sup> edition. Jones & Bartlett Learning.

### **Reference Books:**

1. Prakash J (2021): *Computational Intelligence and Healthcare Informatics*, 1<sup>st</sup> edition. WILEY.
2. Edward H. Shortliffe (2021): *Biomedical Informatics: Computer Applications in Health Care and Biomedicine*, 5<sup>th</sup> Edition, Springer.
3. Magnuson J.A. (2020): *Public Health Informatics and Information Systems*, 3<sup>rd</sup> Edition, Springer.

## **Research Methodology**

### **Textbooks:**

1. Kothari CR and Garg G (2019). *Research Methodology: Methods & Techniques*. New Age.

### **Reference Books:**

1. Gertler PJ, Martinez S, Premand P, Rawlings LB and Vermeersch CMJ (2017) . *Impact Evaluation in Practice*, 2<sup>nd</sup> edition. World Bank Group, Washington DC.
2. Coninck JD, Chaturvedi K, Haagsma B, Griffioen H and Glas MVD (2008). *Planning, monitoring and evaluation in development organizations: sharing training and facilitation experiences*. Sage.

## **Multivariate Analysis**

### **Textbooks:**

1. Anderson, T.W. (2003): *An Introduction to Multivariate Statistical Analysis*, 5<sup>th</sup> ed., Wiley, N.Y.
2. Johnson, R. A. and D. W. Wichern (2002): *Applied Multivariate Statistical Analysis*, 5<sup>th</sup> ed., Prentice Hall, N.Y.

### **Reference Books:**

1. Hyvarinen, A, J. Karhunen and E. Oja (2001): *Independent Component Analysis*, Wiley, New York.

## **Survival Analysis**

### **Textbooks:**

1. Kenneth, J. Rothman, Timothy L Lash and Sander Green Land (2012): *Modern Epidemiology*, 3<sup>rd</sup> Edition, Lippin Catt.
2. Lawless, J. F. (2011). *Statistical models and methods for lifetime data* (Vol. 362). John Wiley & Sons.

### **Reference Books:**

1. Daniel, W. W. (2000): *Bio-Statistics: A Foundation for Analysis in the Health Science*, 7<sup>th</sup> Edition, John Wiley and Sons, New York.
2. Collett D (2014). *Modelling Survival Data in Medical Research*, 3<sup>rd</sup> edition. Chapman & Hall/CR.
3. Lee, E. T. and Wang, J. W. (2013): *Statistical Methods for Survival Data Analysis*, 4<sup>th</sup> Edition, Wiley Series, New York.

## **Statistical Machine Learning and Data Mining**

### **Textbooks:**

1. Gareth J, Daniela W, Trevor H, Robert T (2013). *An introduction to statistical learning: with applications in R*. Springer; 2013.
2. Dunham, M. H. (2003): *Data Mining: Introductory and Advanced Topics*, 1<sup>st</sup> edition, Pearson.

### **Reference Books:**

1. Hall, M., Witten, Ian H., Frank, E. (2011): *Data Mining: practical machine learning tools and techniques*.

## **Bioinformatics**

### **Textbooks:**

1. *Bioinformatics*, Andreas D. Baxevanis, David S. Wishart, Gary D., Bade, Wiley, United Kingdom, 2019.

### **Reference Books:**

1. *Introduction to Bioinformatics*, Lesk, Arthur M, Oxford University Press, USA, 2019. 5<sup>th</sup> edition.
2. *Bioinformatics: Sequence and Genome Analysis*, Mount, D. W., CBS Publishers & Distributors, India, 2005.