

- 1.2. Demonstrate the ability to describe data (find means, standard deviations, outliers, evaluate correlations etc.)
- 1.3. Acquire skills related to visualize data to discover patterns (including interactive visualization techniques)
- 1.4. Interpret findings from implementation of competencies (II),1.1–(II),1.3 using statistical software or object-oriented programming languages
2. Apply inferential statistical methods
 - 2.1. Demonstrate a conceptual understanding of regression
 - 2.2. Understand the model selection approach
 - 2.3. Implement knowledge from competencies (II)2.1, (II),2.2 using statistical software or object-oriented programming languages
3. Apply predictive analytics methods
 - 3.1. Demonstrate a conceptual understanding of:
 - 3.1.1. machine learning approaches
 - 3.1.2. dimensionality reduction approaches
 - 3.1.3. artificial intelligence and deep learning approaches
 - 3.2. Understand the model selection approach including cross-validation methods
 - 3.3. Implement knowledge from competencies (II)3.1–(II),3.3 using statistical software or object-oriented programming languages

III. Evidence generation and reproducibility

1. Develop an understanding of the scientific method, study design and quality of evidence
 - 1.1. Understand the scientific method and develop critical thinking abilities so as to facilitate generation of feasible research questions
 - 1.2. Demonstrate a conceptual understanding of various observational, quasi-experimental and experimental study designs
 - 1.3. Determine the quality of evidence based on the rigor and robustness of design
2. Understand the importance of transparency, replicability, reproducibility, and ethics
 - 2.1. Demonstrate the ability to accurately document and archive data analysis process to facilitate replicability as well as reproducibility
 - 2.2. Utilize various software tools which facilitate reproducibility and replicability

IV. Dissemination and Implementation

1. Acquire effective dissemination skills
 - 1.1. Apply technical writing and oral skills for effective communication and interpretation of quantitative analysis to the scientists and researchers.
 - 1.2. Apply technical writing and oral skills for effective communication and interpretation of quantitative analysis to industry as well as lay audiences
2. Demonstrate the ability to utilize data science methods to answer research questions

- 2.1. Utilize implementation science approaches to integrate tools and applications into practice settings
- 2.2. Evaluate research questions and evidence generated from above tools/applications