

## Department of Statistics and Data Science

### CHRIST (Deemed to be University), Pune Lavasa Campus

#### Feedback Analysis and Action Taken Report 2025-26

This feedback analysis report reviews the curriculum of the programmes offered by the Department of Statistics and Data Science, CHRIST (Deemed to be University), Pune Lavasa Campus.

The aim of this report is to understand how well the current curriculum meets student learning needs and industry expectations, and to identify areas for improvement. Feedback has been collected from students and other stakeholders such as teachers, industry experts, alumni, and parents through surveys and discussions.

The analysis focuses on identifying common suggestions, gaps in the curriculum, and emerging requirements such as practical learning, industry relevance, and advanced topics. These insights will help in updating the curriculum to make it more relevant, balanced, and aligned with current academic and professional demands.

Stakeholder	No. of Feedback
Student	13
Teacher	12
Industrial Expert	5
Alumni	8
Academic Expert	6

### **BSc Data Science**

#### **Summary of Feedback**

The following section provides a consolidated overview of insights from various stakeholders, highlighting a collective emphasis on enhancing practical exposure, industry alignment, and the integration of emerging technologies within the BSc Data Science curriculum.

##### 1. Students

- Logical Continuity: Positive response to the restructuring of Inferential Statistics, acknowledging that the previous focus solely on sampling theory left gaps in knowledge required for subsequent semesters.
- Modern Toolsets: Strong interest in learning Web Technologies using current tools like VS Code and Pycharm instead of older environments, alongside a desire for interactive components like JavaScript and CSS frameworks.
- Practical Engagement: Preference for the inclusion of mandatory lab programs in courses like Web Technologies and NoSQL Databases, which allow for immediate application of theoretical concepts like web scraping and schema design.
- Structural Clarity: Appreciation for the reordering of units in NoSQL Databases to ensure a more intuitive learning path from Key-Value stores to more complex Column-Family systems.

## 2. Alumni

- Specialized Analytics Integration: Strong recommendation to incorporate modules on Product Analytics (user behavior, funnel analysis, churn metrics) and Operations Analytics (demand forecasting, inventory optimization) to make graduates more research-centric and industry-ready.
- Business Applications: Suggestion to include practical modeling for revenue forecasting and fraud detection, noting these are major determinants of finance flow in growing businesses.
- Syllabus Agility: Critical feedback highlighting a need for more frequent updates to ensure the curriculum remains in sync with rapid advancements and current industry trends.
- Logistics and Modeling: Advice to include Logistics Analytics as a core component of financial modeling based on logistics flow.

## 3. Industry and academic Experts

- Data Collection Skills: Emphasis on the necessity of Web Scraping skills using libraries like BeautifulSoup and Selenium, noting that the ability to extract data from both static and dynamic websites is a vital competency.
- Non-Relational Proficiency: Recommendation to include diverse data models such as Wide-column and Key-Value stores to prepare students for the variety of database architectures used in modern enterprise environments.
- Application-Oriented Design: Encouragement to use real-world applications and project presentations in the final units of technical courses to simulate professional project lifecycles.

## 4. Teachers

- Academic Alignment: Validation of the shift in Inferential Statistics to include Hypothesis Testing foundations, ensuring the curriculum aligns with university standards and provides the necessary rigor for level 200 and 300 courses.
- Andragogy and Flow: Approval of the unit restructuring in NoSQL Databases, emphasizing that a logical flow from simpler to more complex concepts is essential for deep learning and student retention.
- Ethical Considerations: Commendation for integrating ethical and legal guidelines within the Web Scraping module, aligning the curriculum with responsible data practices and NEP requirements.

## Action Taken

The Department of Statistics and Data Science has taken the following specific actions to address stakeholder feedback and contemporary requirements for the BSc Data Science programme.

#### 1. Strengthening Academic Foundations and Prerequisites

- **Inferential Statistics Enhancement:** The department expanded the Inferential Statistics syllabus to include critical topics such as population/sample concepts, point estimation (including MLE and Method of Moments), and interval estimation.
- **Logical Alignment:** This change was specifically implemented to address previous gaps where a sole focus on sampling theory left students unprepared for hypothesis testing in subsequent semesters.

#### 2. Modernization of Technical Tools and Programming

- **Transition to Industry Standards:** In the Web Technologies course, the department moved away from older tools like Adobe Dreamweaver in favor of modern environments such as VS Code, Pycharm, and Bootstrap Studio.
- **Expanded Programming Scope:** In response to feedback requesting more interactivity and diverse languages, JavaScript was integrated into the core web design module.
- **Advanced Data Collection:** A comprehensive module on Web Scraping was introduced, covering essential Python libraries like BeautifulSoup, Requests, and Selenium to ensure students can handle both static and dynamic data extraction.

#### 3. Enhancement of Practical and Experiential Learning

- **Mandatory Lab Components:** Significant practical weightage was added to technical courses through structured lab programs. For example, the Web Technologies course now includes ten specific lab programs ranging from basic HTML/CSS to complex authenticated web scraping scripts.
- **Real-World Application:** The department integrated real-world applications and project presentations into final units (e.g., in Web Scraping) to ensure students can synthesize various techniques into a cohesive, professional project.
- **Hands-on Database Training:** The NoSQL Databases course was updated to include specific lab exercises for Redis (Key-Value stores) and Cassandra (Column-Family databases), focusing on schema design and real-time data use cases.

#### 4. Structural and Pedagogical Optimization

- **Improved Conceptual Flow:** The department reordered the delivery of topics in NoSQL Databases, placing simpler Key-Value models before complex Column-Family systems to ensure a more intuitive learning path.
- **Integration of Ethics and Responsibility:** Ethical and legal guidelines for data practices, particularly concerning web scraping and data extraction, were formally embedded into the technical modules to align with university value systems and NEP 2020 requirements.

## **BSc Economics and Analytics**

### **Summary of Feedback**

The following section provides a consolidated overview of insights from various stakeholders, highlighting a collective emphasis on enhancing practical exposure, industry alignment, and the integration of emerging technologies within the BSc Economics and Analytics curriculum.

### 1. Students

- **Practical Context:** Appreciation for the inclusion of specific economic applications in Mathematics, such as Gini coefficients and Lorenz curves, which make abstract mathematical concepts feel more relevant to their core domain.
- **Curriculum Depth:** Request for a shift away from surface-level coverage of many topics toward a deeper understanding of advanced economic models.
- **Technical Progression:** Emphasis on the need for a continuous learning path for Machine Learning into the higher semesters to ensure skills do not stagnate.

### 2. Teachers

- **Foundation Gaps:** Identification of a critical need to move beyond basic sampling theory in Inferential Statistics, as students previously lacked the necessary foundations in estimation theory to handle fourth-semester hypothesis testing.
- **Outcome-Based Teaching:** Strategic addition of marginal rate of substitution and cost-minimization exercises to Mathematical Economics to ensure the syllabus directly supports the programme's specific outcomes in analytics.

### 3. Alumni

- **Research Infrastructure for Higher Education:** Suggestion to dedicate a full semester to a research thesis or dissertation. This is viewed as essential for students applying to Master's programmes abroad to remain competitive.
- **Emerging Technology Foundations:** Strong interest in incorporating the basics of Generative AI and Prompt Engineering, noting that these skills are now preferred across almost all industries.
- **Cloud Computing Proficiency:** Recommendation to include introductory courses on AWS, Azure, or Google Cloud, specifically focusing on cloud architecture, SaaS, and PaaS concepts.
- **Strengthening Economics Core:** Significant concern regarding the depth and clarity of foundational Economics concepts. Alumni have emphasized that strengthening the "Majors" subject is critical for success in international higher education.
- **Breadth of Skills:** Request for more diverse programming languages and the addition of business-related electives to provide students with extra credits for specialized management degrees.

### 4. Industry Experts

- **Market Alignment:** Recommendation to align the curriculum more closely with current market requirements, emphasizing the application of data-driven insights to solve complex economic problems.
- **Applied Analytics:** Support for the inclusion of Consumer and Producer Surplus applications, noting that these foundational concepts are essential for analysts working in market research and pricing strategy.

### 5. Academic Experts: Academic Integrity and Standards

- **Structural Rigor:** Validation of the revised Inferential Statistics syllabus, noting that including Maximum Likelihood Estimation (MLE) and the Method of Moments is essential for maintaining university-level academic standards.
- **Multidisciplinary Integration:** Commendation for the interdisciplinary approach of blending high-level calculus with production and cost functions, which strengthens the analytical rigor of the degree.

## Action Taken

The Department of Statistics and Data Science has implemented the following actions for the BSc Economics and Analytics (BSc EA) programme to ensure it remains industry-aligned and academically rigorous.

### 1. Expansion of Statistical Inference Foundations

- **Transition from Sampling to Inference:** The department significantly revised the Inferential Statistics course, moving away from a syllabus primarily focused on sampling theory to one that includes essential prerequisites for hypothesis testing.
- **Introduction of Estimation Theory:** New modules were added covering the Concept of Population and Sample, Parameter and Statistic, and Sampling Distributions.
- **Advanced Estimation Methods:** To provide a comprehensive foundation, the department introduced criteria for good estimators (Unbiasedness, Consistency, Efficiency, Sufficiency) and diverse estimation methods, including Maximum Likelihood Estimation (MLE) and the Method of Moments.
- **Interval Estimation:** A new unit on Confidence Interval Estimation was integrated to ensure students can calculate confidence limits for large samples, which was previously omitted.

### 2. Integration of Applied Economic Modelling

- **Contextualizing Mathematics:** In response to feedback requesting mathematics more relevant to economic applications, the Mathematical Economics syllabus was updated to include specific domain-related exercises.
- **Microeconomic Applications:** Unit 2 now features applications for Cost and Production Functions, Elasticity, and the Marginal Rate of Substitution.
- **Optimization Frameworks:** The department added specific economic applications for the Lagrange multiplier method, focusing on cost minimization and profit maximization.
- **Welfare and Inequality Metrics:** Unit 5 was enhanced with practical applications such as Consumer and Producer Surplus, the Lorenz Curve, and the Gini Coefficient for analyzing income inequality.

### 3. Alignment with Stakeholder Feedback and Industry Trends

- **Addressing Depth over Breadth:** Actions were taken to increase the depth of understanding in core courses rather than covering many topics at a surface level, aligning with student and industry feedback.
- **Continuous Improvement:** The department followed a 7-stage curriculum development process, involving the Curriculum Development Committee (CDC) and Board of Studies (BoS) to validate these changes against Local, Regional, National, and Global (LRNG) needs.

### 4. Procedural and Quality Assurance Actions

- **Stakeholder Consultation:** The revision process included a Review of Conceptual Design, where feedback was gathered from students, alumni, and industry experts to identify gaps in the existing framework.
- **Validation by Experts:** Course content was assigned to a panel of domain experts across Statistics, Data Science, and Economics to ensure the interdisciplinary nature of the programme was maintained.

- Competency-Based Design: Every course was re-evaluated to ensure Course Outcomes (COs) are progressively linked and measurable, specifically addressing the 21st-century skillset required for economic analysts.

## Conclusion

In conclusion, the feedback analysis for the BSc Data Science and BSc Economics and Analytics programmes underscores a strategic commitment to a dynamic, industry-aligned, and research-driven curriculum. By systematically synthesizing inputs from students, alumni, industry experts, and academic peers, the Department of Statistics and Data Science has tried to identify and bridge critical gaps between theoretical foundations and professional requirements.

