CCS|CIS2042 Statistical Distribution & Inferences – Research Project Guideline

Objective

Apply course knowledge to real-world data, conduct statistical analysis, and present results in a formal research paper, aiming for potential publication.

Group Formation

- Each group must consist of 5 students, including a mix of Computer Science (CS) and Information Systems (IS) students.
- Use Github Classroom

Stage 1: Proposal Submission

- One-Page Proposal Requirements:

Each group must submit a 1-page proposal that includes:
1. Project Title
2. Brief Description of the Idea (50–100 words)
3. Research Objectives
4. Course Topics Covered (e.g., Probability Distributions, Estimation, Hypothesis Testing)
5. Data Source (real-world, survey, or secondary data)
6. Proposed Statistical Methods

- Approval:

- Proposals must be submitted by 1st of June via Github Classroom.
- Lecturer will provide feedback/approval within 5 working days.
- Only approved proposals can proceed to project execution.

Stage 2: Research Execution

Students should:
- Design a sampling strategy
- Collect or obtain data
- Apply inferential statistical techniques (taught in the course)
- Use R or Python for implementation
- Maintain a GitHub repository with all code and documentation.

Stage 3: Final Report Submission

- Report Format (Max 12 pages, excluding references):

1. Introduction – Background, motivation, objectives
2. Literature Review – Summary of 3–5 related works
3. Methodology – Data source, sampling, statistical tests used
4. Results – Tables, plots, descriptive and inferential outcomes
5. Discussion – Interpretation of findings
6. Conclusion – Summary, implications, and limitations
7. References – APA or IEEE format
8. Appendix (if necessary)

- Use LaTeX to create the Report.

- GitHub Repository:

- Submit a link containing:
  - Source code
  - README file (overview + instructions)
  - Sample or anonymized data

Stage 4: Oral Presentation

- Duration: 10 minutes + 5 minutes Q&A
- Every member must speak.
- Use visual aids (e.g., slides, charts, dashboards)

Evaluation Scheme (Total: 100 + 10 Bonus Marks)

Component	Marks	Criteria
Proposal	10	Clarity, scope, relevance to course content
Data Collection & Preparation	20	Sampling, data cleaning, handling missing data
Statistical Analysis	20	Use of estimation, hypothesis testing, regression, etc.
Methodology & Interpretation	10	Justification of methods, logical flow
Results & Discussion	10	Insightful interpretation, visualization quality
Report Quality	10	Structure, academic writing, formatting, citations
GitHub Repository	10	Code readability, documentation, reproducibility
Presentation & Defense	10	Communication, teamwork, handling questions
BONUS: Paper/Abstract Submission	+10	Extra marks for submitting an abstract or full paper to a journal/conference with proof of submission

Guidelines & Notes

- Plagiarism policy: Reports with more than 15% similarity will be rejected.
- Late submission: 5% deduction per day late.
- Groups are strongly encouraged to focus on practical, real-world issues and demonstrate originality.
- Students submitting to peer-reviewed conferences or academic journals are eligible for an additional 10 bonus marks upon submission (proof required).