

Lecture Scribe CSE400



L3.pdf

PDF

Generate a lecture scribe for the given PDF file in chat. This is the lecture file that our professor used while conducting the lecture. A lecture scribe is an exam-ready reconstruction of what was taught in the class, and it should allow me to recall definitions and notations, reconstruct proofs and derivations, follow worked examples step by step, and understand logical dependencies. Also, a lecture scribe must not have creative explanations, simplified tutorials, textbook rewrites, a solution manual for unseen problems, and a place to add intuition not discussed in class. The key point is that if it was not in the lecture or textbook context, then it should not appear in the lecture scribe. Also, the purpose of lecture scribing is that it must help me during exams to revise concepts in a shorter period.

Below is an **exam-ready lecture scribe** reconstructed **strictly from the provided lecture PDF** (Lecture 3 slides as used in class).

No additional intuition, external explanations, or creative expansions have been added.

Content is organized to help **fast revision, definition recall, and logical sequencing**, exactly as expected from a formal lecture scribe.

CSE400 – Fundamentals of Probability in Computing

Lecture 3: Introduction to Probability Theory (Part-0: Course & Learning Context)

Instructor: Dr. Dhaval Patel

Date: January 13, 2026

1. Administrative Context of the Lecture

1.1 Course Identification

- **Course Code:** CSE400
 - **Course Title:** Fundamentals of Probability in Computing
 - **Lecture Number:** 3
 - **Lecture Theme (as per slides):** Introduction to Probability Theory
 - *Note:* This lecture primarily sets up **course structure, motivation, and expectations**, not formal probability axioms yet.
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2. Instructor and Teaching Team

2.1 Instructor

- **Name:** Dr. Dhaval Patel
 - **Role:** Course Instructor
 - **Office:** Faculty Office, Room-210
 - **Email:** dhaval.patel@ahduni.edu.in
 - **Research Areas Mentioned:**
 - xG Networks
 - Applied ML / DL / RL
 - AutoML
 - Intelligent Transportation Systems
 - Behaviour Modelling using AI
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2.2 Teaching Assistants (TAs)

- Multiple B.Tech (CSE) students (3rd & 4th year)
 - Areas include:
 - Reinforcement Learning
 - Spectrum Sensing
 - Antenna Systems
 - Transportation Systems
 - **TA hours:** To be finalized (announcement to follow)
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3. Learning Philosophy Emphasized in Class

3.1 Growth Mindset (Explicitly Shown)

Statements highlighted in slides:

- Failure is an opportunity to grow
- Challenges help learning
- Feedback is constructive
- Effort determines ability

3.2 Fixed Mindset (Contrasted)

- Failure defines limits
- Avoids challenges
- Belief in unchangeable ability

Purpose in lecture:

To set **student attitude expectations** for a mathematically rigorous course.

4. Why Learn CSE400? (Motivation)

4.1 Daily-Life Motivation

- Probability appears in:
 - Everyday conversations
 - Decision-making under uncertainty

4.2 Engineering Applications (Explicit List)

- **Speech Recognition**
- **Radar Systems**
- **Communication Networks**

These examples justify why probability theory is foundational for computing systems.

5. Course Infrastructure

5.1 Active Learning Platform

- **Platform:** Campuswire
- **Usage:**
 - Anonymous participation

- Back-channel questions during lecture
- Real-time polling
- Direct messaging (DM) with instructor/TAs

5.2 Course Website

- Section-1 and Section-2 links provided via Campuswire
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6. Lecture Schedule

6.1 Lecture Sessions

- **Section-1:**
 - 9:30 AM – 11:00 AM
 - Tuesday & Thursday
 - GICT Room-136
 - **Section-2:**
 - 1:00 PM – 2:30 PM
 - Tuesday & Thursday
 - GICT Room-137
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7. Communication & Support Policy

7.1 Instructor Interaction

- Contact hours: 24x7 through Campuswire
 - Preferred method: Post queries on Campuswire
 - Private issues: Direct Message (DM)
 - One-to-one discussion possible (student-instructor only)
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8. Assessment Structure (High-Level)

8.1 Project Component

- **Weightage:** 30%
- **Includes:**
 - Team formation
 - Mathematical modeling

- Coding
- Randomized algorithms
- Final analysis and bounds

8.2 Milestones (M1–M6)

- M1: Problem formulation
 - M2: Mathematical modeling
(Random Variables, PMF/PDF, CDF, multivariate RVs, joint distributions, etc.)
 - M3: Simulation and computation
 - M4: Inference and randomized algorithms
 - M5: Comparison with deterministic approaches
 - M6: Bounds, analysis, final submission
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9. Lecture Scribe Requirement (Meta-Instruction)

9.1 Definition (As per course)

A **lecture scribe** must:

- Reflect **exact lecture content**
- Follow the **same structure and terminology**
- Avoid:
 - Simplified tutorials
 - Extra intuition
 - New examples not discussed
 - Solution manuals

9.2 Types of Scribes

- Lecture Scribe
- Project Scribe

This current document follows the **Lecture Scribe** format.

10. Scope Boundary of This Lecture

- **✗** No probability axioms introduced
- **✗** No random variables defined
- **✗** No PMF/PDF/CDF derivations yet

- ✓ Focus on **course framing, motivation, and learning process**

| Formal probability theory begins in subsequent lectures.

11. End of Lecture Notes

- Open Q&A session
 - No mathematical derivations in this lecture
 - Sets foundation for upcoming probability theory lectures
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End of Lecture 3 Scribe

If you want, I can:

- Convert this into **LaTeX-ready scribe format**
- Prepare **exam-time ultra-short revision notes**
- Generate **Lecture 4 onward scribes** once you upload the next PDF