

CSE 400 — Lecture 3 Scribe

Fundamentals of Probability in Computing

January 13, 2026

1 Lecture Metadata and Context

- Course Code: CSE400
- Course Title: Fundamentals of Probability in Computing
- Lecture Number: Lecture 3
- Lecture Title: Introduction to Probability Theory
- Instructor: Dr. Dhaval Patel

2 Motivational and Pedagogical Framing

2.1 Growth Mindset Emphasis

Growth Mindset Statements

- Failure is an opportunity to grow
- I like to try new things
- I can learn to do anything I want
- Challenges help me grow
- My effort and attitude determine my abilities
- Feedback is constructive
- I am inspired by the success of others

Fixed Mindset Contrast

- Failure is the limit of my abilities
- I'm either good at it or I'm not
- My abilities are unchanging
- I don't like to be challenged
- My potential is predetermined
- When I'm frustrated, I give up
- I stick to what I know

3 Lecture Outline

3.1 General Course Information

Topics listed:

- Team
- Active Learning Platform: Campuswire

- Schedule
- Grading

3.2 Why Should We Learn CSE400?

Example: Daily life conversations.

3.3 Engineering Applications

- Speech Recognition
- Radar Systems
- Communication Networks

4 Course Team Structure

4.1 Instructor Information

- Name: Dr. Dhaval Patel
- Office: Faculty Office (Room 210)
- Research Areas:
 - xG Networks
 - Applied ML / DL / RL / AutoML
 - Intelligent Transportation Systems
 - Life Sciences
 - Behaviour Modelling using AI
- Email: dhaval.patel@ahduni.edu.in

4.2 Teaching Assistants and Team Members

Team members are listed with name, degree program and year, research or project focus, and institutional email.

5 Active Learning and Communication Infrastructure

5.1 Active Learning and Class Discussion

Platform: Campuswire

Course Website Sections:

- Section 1
- Section 2

5.2 Purpose of Campuswire

1. Anonymous participation to build confidence
2. Collaborative and active learning
3. Real-time feedback via polling
4. Direct messaging with instructor and TAs

6 Course Schedule

6.1 Lecture Sessions

Section 1

- Time: 9:30 AM – 11:00 AM
- Days: Tuesday, Thursday
- Venue: GICT Room 136

Section 2

- Time: 1:00 PM – 2:30 PM
- Days: Tuesday, Thursday
- Venue: GICT Room 137

6.2 TA Hours

Mode: In person / Online

Status: To be finalized

7 Communication with Instructor

- 24×7 discussion via Campuswire
- Public questions encouraged
- Direct messages for private discussions
- External opportunities: UGRP-8 (2026), offline projects, counseling, informal discussions

8 Important Notes

LaTeX tutorial and assignment submission guidelines are explicitly mentioned.

9 Project and Evaluation Structure

9.1 Project Weightage

Project Kickoff: 30%

9.2 Milestones (M1–M6)

1. Concept evolution maps
2. Mathematical modeling (RV, PMF/PDF, CDF, joint distributions)
3. Coding: simulation and computation
4. Inference and randomized algorithms
5. Randomized algorithms comparison
6. Deriving bounds and analysis

10 Explicit Absence of Technical Probability Content

This lecture does not include definitions, axioms, proofs, random variables, PMFs, PDFs, CDFs, or worked numerical examples.

11 Summary of Lecture 3 Scope

Lecture 3 is administrative and motivational. No examinable probability theory is introduced.