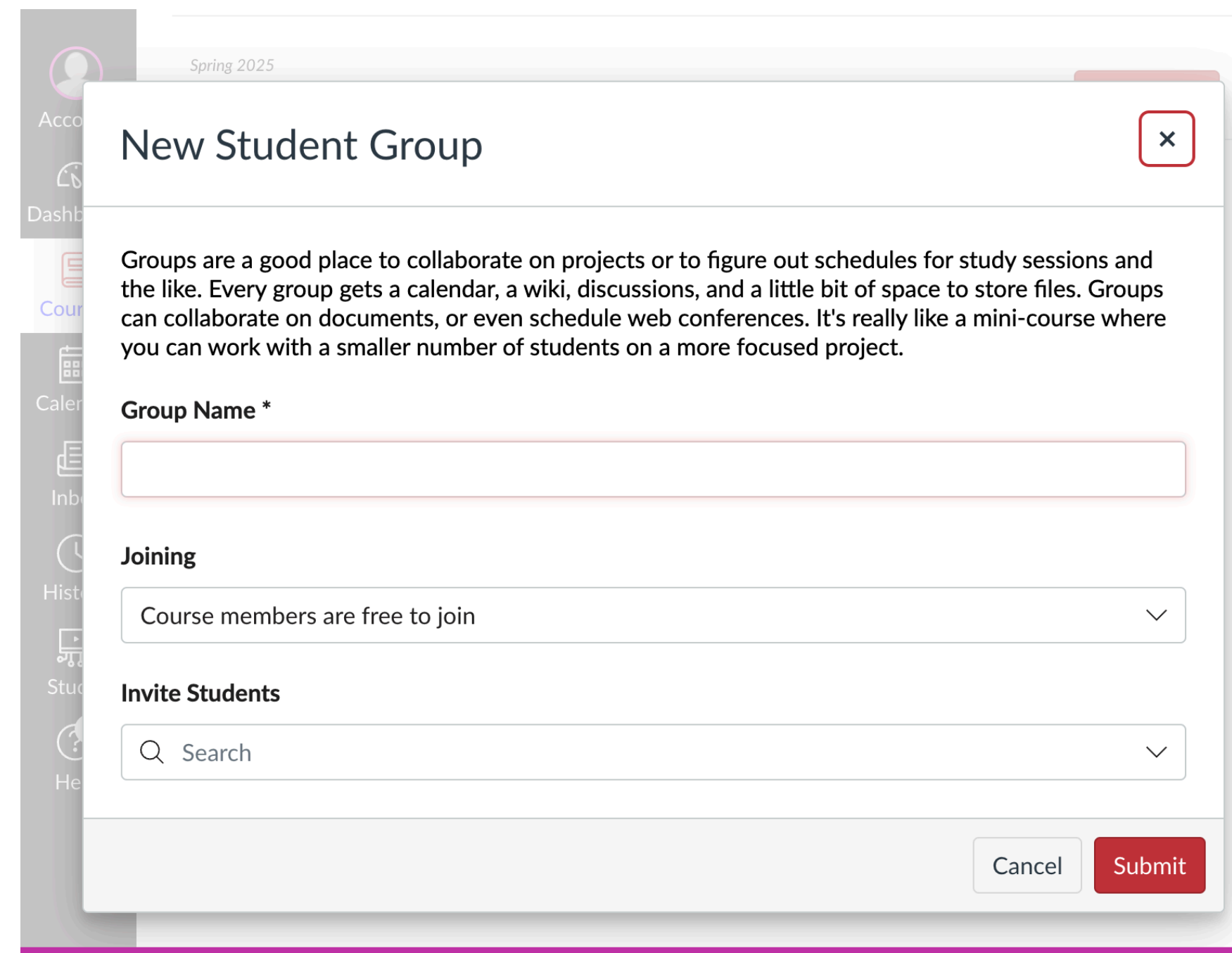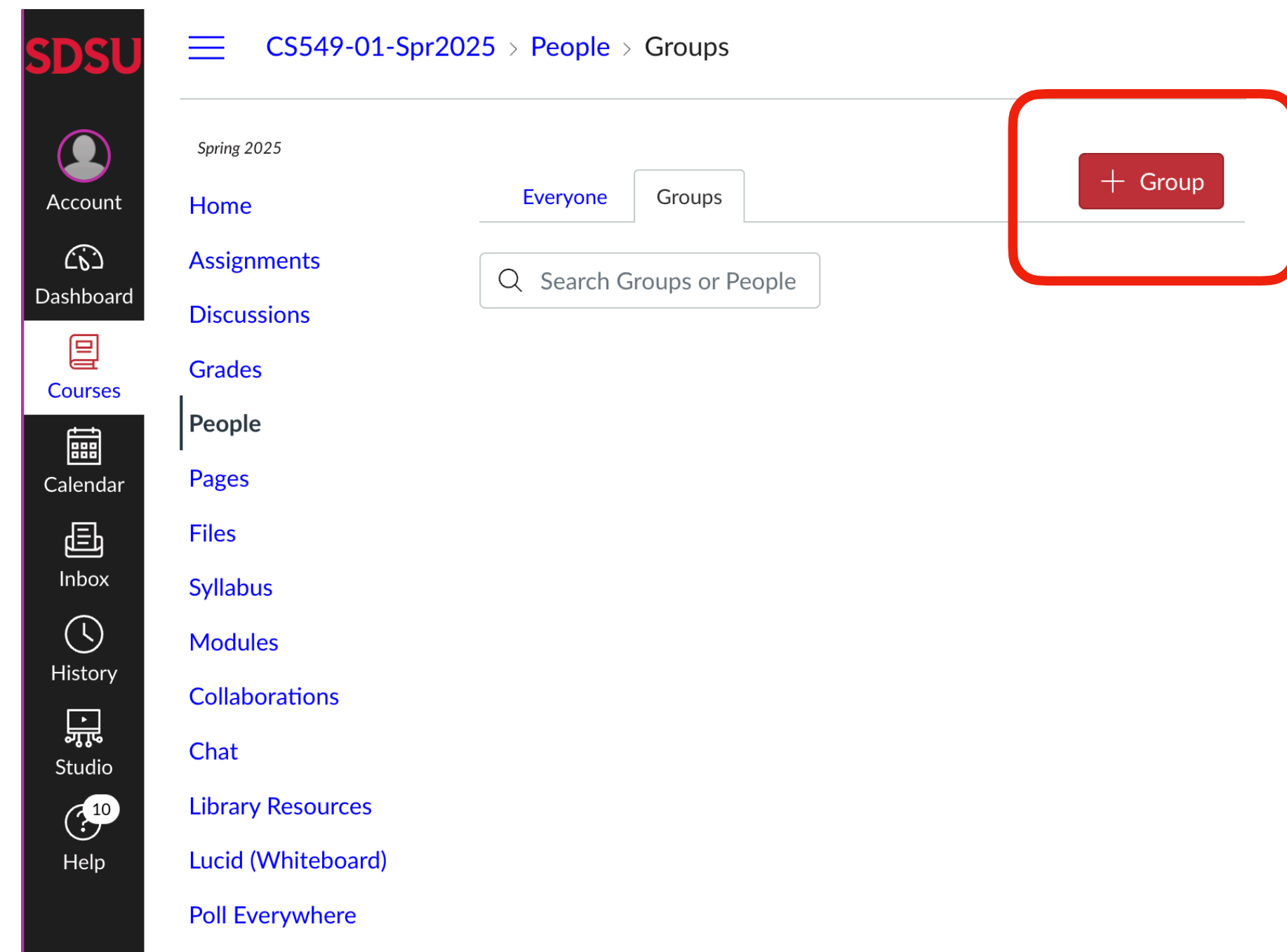# CS 549 Group Project Description

Explore Machine Learning more in depth!

Course Project

Group Formation:

- Students will work in **groups of 4-5**.

- Each group must be formed by **Week 8** and registered on **Canvas**.

- Groups are encouraged to have a **diverse mix of skills** (e.g., coding, writing, mathematical modeling, and experimentation).

Grading breakdown

1. **Project Proposal Report** (10%) – **Due Friday, March 28**

   - A 2-3 page document outlining:

     - Problem statement and motivation (2%)

     - Dataset description (existing dataset or collection plan) (2%)

     - Planned methodology (ML models, techniques) (2%)

     - Evaluation metrics and expected outcomes (2%)

     - Work distribution among group members (2%)

   - Submission: Upload to Canvas

2. **Code & Model Submission (5%)** – **Due** along with the final report **(Friday, May 9)**

   - All code should be well-documented and reproducible.

   - Include training (2%), testing (2%), and evaluation scripts (1 %).

   - Preferred submission: GitHub repository link, or a ZIP file on Canvas

3. **Final Report** (15%) – **Due Friday, May 9**

   - A 5-8 page report (IEEE format recommended) including:

     - Introduction and research problem (1%)

     - Related work (brief literature review) (2%)

     - Methodology and technical details (5 %)

     - Experimental results and analysis (4 %)

     - Conclusion and future work (2 %)

     - Contributions of each group member (1%)

   - Submission: Upload to Canvas

Project timeline

Week	Task	Deadline
Week 4	Project officially begins	Start brainstorming ideas
Week 8	Group formation deadline	Register group on Canvas
Week 10	Project proposal due	Submit report to Canvas by March 28
Week 14-15	Mid-project progress check (Optional)	Groups can consult with instructor for feedback
Week 16	Final report & code submission	Submit to Canvas by May 9

Expectations & Guidelines

- **Originality & Depth:** The project should **go beyond class assignments**, either by applying ML techniques to a **new dataset** or extending an existing ML model in a novel way.

- Dataset Choice: You can use existing datasets (e.g., Kaggle, UCI, OpenML).

- **Model & Evaluation:** Each project should implement at least **one machine learning model**, **compare** results **with a baseline**, and use proper evaluation metrics.

- **Collaboration:** Each group member must contribute, and a **contribution summary** must be included in the final report.

Good resources you could consider

- Kaggle competitions

- 25 Machine learning projects of all levels

- AI & ML Challenges: NeurIPS

- Autonomous driving related: Way challenges, nuScenes