BT4012 Fraud Analytics

Academic Year 2025/2026 Semester 1 Lecturer: Dr. Yiliang ZHAO, Dr. Rui ZHAO

Project Guidelines and Grading Criteria

Updated as of 26th July 2025

Project Description

The course project is designed to provide hands-on experience in applying fraud analytics and machine learning techniques to address real-world fraud detection challenges. Working in groups of **3 to 4 students**, you are expected to design, develop, and evaluate a fraud detection pipeline using techniques taught in this module (and optionally beyond).

The project includes two deliverables:

- A **Group Project Presentation**
- A **Group Project Final Report**

Together, these components contribute **40% of your total course grade**.

Disclaimer:

Individuals in the same group will generally receive the same scores for all components of the Group Project, unless feedback is received that a particular member is only superficially participating and not doing actual work. Please voice out your concerns to the lecturer if you think it is necessary. And we will do a peer evaluation after the submission deadline.

Important things to note:

Please name your files in the following format - report**XX**.pdf for Group Project Final Report and presentation**XX**.pptx for Group Project Presentation where **XX** is your group number. For example, **Group 1**'s report should be named as **report01.pdf**. If you are not following this naming convention specified above, your submission will be penalized by 2 points.

Project Component	Due Date and Time	Submission Items
Project Proposal [Optional]	21 Sept 2025@23:59	PDF Proposal
Group Project Presentation	23 Nov 2025@23:59	Presentation Deck and Video
Group Project Final Report	23 Nov 2025@23:59	PDF Report and Code

Optional Project Proposal (By Week 6)

When to submit: 21 Sept 2025, Sunday at 23:59
Who to submit: A representative of each group to submit
What to submit: 1 page PDF proposal
Where to submit: ***Canvas > Assignments > Course Project > Proposal***

You may choose to submit a brief project proposal by Week 6. This is optional but highly encouraged if you'd like early feedback from us.

- Objective: To share your project idea so we can help assess its feasibility, data suitability, and technical scope.

- Format: 1 page outlining the problem statement, dataset(s), and your planned methodology (preliminary is fine).

This is not graded but intended to help you stay on track and avoid scope misalignment later in the semester.

Group Project Final Report

When to submit: 23 Nov 2025, Sunday at 23:59
Who to submit: A representative of each group to submit
What to submit: PDF Report (Please include URL to your GitHub Repo in the report)
Where to submit: ***Canvas > Assignments > Course Project > Final Report***

Guidelines

You are to submit an **8–12-page PDF report** that extends/continues from your Group Project Proposal. The page limit excludes appendices and references.

Recommended Report Structure

1. **Problem Description**
    - Define the fraud problem your project addresses
    - Explain its real-world importance and inherent challenges

2. **Data Overview**
    - Source(s) of dataset(s)
    - Dataset characteristics (e.g., number of records, types of variables)
    - Tabular summary of variables

3. **Methodology**
    - Data pre-processing (e.g., cleaning, transformation, feature engineering)
    - Model selection and justification (e.g., supervised, unsupervised)
    - Analytical insights derived

4. **Experiments and Results**
    - Model performance evaluation (metrics, visualizations)
    - Integration into real-world business processes
    - Additional insights from experiments

5. **Conclusion**
    - Summary of findings
    - Limitations and future directions

Grading Criteria

The Group Project Final Report weighs **20%** of your overall final grade. Your report will be evaluated based on:

(1) Clarity and completeness of the report
(2) Appropriateness of the models and methods applied for analysis
(3) Coherence and consistency of proposed methods with hypotheses
(4) Usefulness of your analysis in other similar real-world problems
(5) Concise summarization of your work
(6) Reasonability of the discussion of the advantages and limitations of applied methods to the defined problem

Group Project Presentation

Who to present: Every member of the group should have an equal share in presenting
*What to present: **15 minutes'** worth of slides containing highlights of your analysis*
When to submit: 23 November 2025, Sunday at 23:59
What to submit: Presentation Slides and the Presentation Video
*Where to submit: **Canvas > Assignments > Course Project > Presentation***

Guidelines

1. You are to prepare **15 minutes** worth of slides for presentation and **record your group presentation**. The flow and content (please select the highlights of your analysis) of the presentation can follow that of the Final Report.
2. You must include the title and group members at the beginning of the video, either as the first page of your slides or as an overlay text. Make sure that you leave the title for long enough of a duration to be read (up to 8 seconds).
3. You may record your presentation by capturing your computer screen along with audio. Recommended screen recording tools include:
    a. For Windows users: OBS Studio, Camtasia
    b. For macOS users: OBS Studio, or the built-in QuickTime Player

    You can also record your presentation using Zoom, Microsoft Teams, or other online meeting platforms by starting a meeting and using the built-in recording function.

4. Make sure your final video has clear visuals and audio, and test that it plays correctly before submission.

Grading Criteria

The Group Project Presentation weighs **20%** of your overall grade. As long as your slides are complete, you will be awarded **5%**. The remaining **15%** of the grading of the presentation will be dependent on:

1. Clarity of background and problem statement
2. Justification and explanation of selected models and techniques
3. Coherence and flow of the presentation
4. Professionalism, preparation, and confidence
5. Slides that are clear and self-explanatory
6. Adherence to time limit and balanced team contribution

All the best for your project!

- End -