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Group work, reflection, and mathematical communication in a large first year calculus course

This past year, the introductory calculus course at UBC was redesigned to primarily emphasize group work, with a secondary emphasis on reflection, and clear mathematical communication. The course was designed so that one of the three contact hours a week was centred around active learning in a smaller class. Students formed persistent groups; they sat with their groups during class, and completed five challenging written group assignments together. Notably, each group assignment began with a reflection question and the grading rubric included items for clear mathematical communication.

At the end of the course we ran student focus groups and analyzed end of term surveys to determine how students experienced the different components of the course. Here we will present the relevant details of the redesign, the results of the student focus groups and surveys, and our own reflections on improving the course for next year. In particular, we comment on the challenges of doing this at scale, with over 4000 students.