Job Posting:169574 - Position: S25 - AI and Mathematical Thinking, Course Development Assistant 169574

Co-op Work Term Posted:	2025 - Summer
App Deadline	05/16/2025 09:00 AM
Application Method:	Through UBC Science Co-op
Posting Goes Live:	05/13/2025 01:30 PM
Job Posting Status:	Approved

ORGANIZATION INFORMATION

Organization	UBC Mathematics
Address Line 1	1984 Mathematics Road
City	Vancouver
Postal Code / Zip Code	V6T 1Z2
Province / State	BC
Country	Canada

JOB POSTING INFORMATION

Placement Term	2025 - Summer
<b> Job Title <b>	S25 - AI and Mathematical Thinking, Course Development Assistant 169574
Position Type	Co-op Position
Job Location	Remote, BC
Country	Canada
Duration	4 months
Work Mode	Fully Remote
Salary Currency	CAD
Salary	2750.0 per month for 35 Major List

Job Description

This position will support a research project on integrating Large Language Models (LLMs) into mathematical education, specifically for Math 220 (Mathematical Proof) at UBC Vancouver. The role includes exploring LLM interactions with mathematical proofs at an introductory level and developing new course materials that enable students to use AI tools effectively while developing critical thinking skills. This position will contribute to understanding how AI can enhance mathematical education while guarding against "cognitive offloading" (i.e., letting the AI do too much of the thinking and practice, resulting in diminished learning for the user).

We are seeking a detail-oriented, conscientious student with experience in mathematical proof writing, some familiarity with LLMs, and knowledge of LaTeX. The key attributes we look for are strong analytical skills, attention to detail, creativity in problem design, and an interest in the intersection of AI and mathematics education. This position reports to faculty members in the Department of Mathematics leading the project.

Work Performed:

- Explores how LLMs interact with mathematical proofs at the introductory level
- Tests LLM capabilities to generate new, valid proof problems based on example problems
- Evaluates how LLMs can provide assistance in the proof learning process
- Develops and tests LLM-generated example proofs/solutions for mathematical problems
- Assesses LLM capabilities in providing feedback on student proofs written in LaTeX

- Explores the limitations in mathematical reasoning of various LLMs
- Creates new questions for Canvas quizzes, in-class exercises, and homework assignments
- Develops documentation summarizing best practices, limitations, and ethical considerations for LLM use in mathematical contexts
- Maintains accurate records of findings and progress
- Participates in collaborative meetings with faculty supervisors

Job Requirements

Education/Work Experience

- **Successful completion of Math 220 (Mathematical Proof) or equivalent introductory proof course**
- Experience using LLMs as a user
- Experience with Canvas as a student; any experience developing materials for teaching in Canvas would be an asset but not expected

Skills

- Foundational skills in mathematical proof writing and logical reasoning
- Familiarity with Large Language Models and their capabilities as a user
- Working knowledge of LaTeX for mathematical document preparation
- Critical thinking and problem-solving abilities
- Attention to detail and thoroughness in assessment
- Ability to work both independently and collaboratively
- Excellent written and verbal communication skills
- Responsible, professional, reliable

Equipment

- We would ask for those hired to use their own computers (work files will be private but are not sensitive, i.e., this work will not involve handling personal information); a current consumer-grade laptop would be sufficient.

Citizenship Requirement N/A

APPLICATION INFORMATION

Application Procedure Through UBC Science Co-op
Cover Letter Required? No