

On-Demand Student Support with Virtual Labs and Help Desk

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Improving Student Support

Goal: Help students efficiently across multiple channels: in-person or virtual office hours, labs, email, chat, web, and AI. **Reduce emails.**

Students want **flexible learning in time and space** and will attend lab and help sessions based on their measure of learning value.

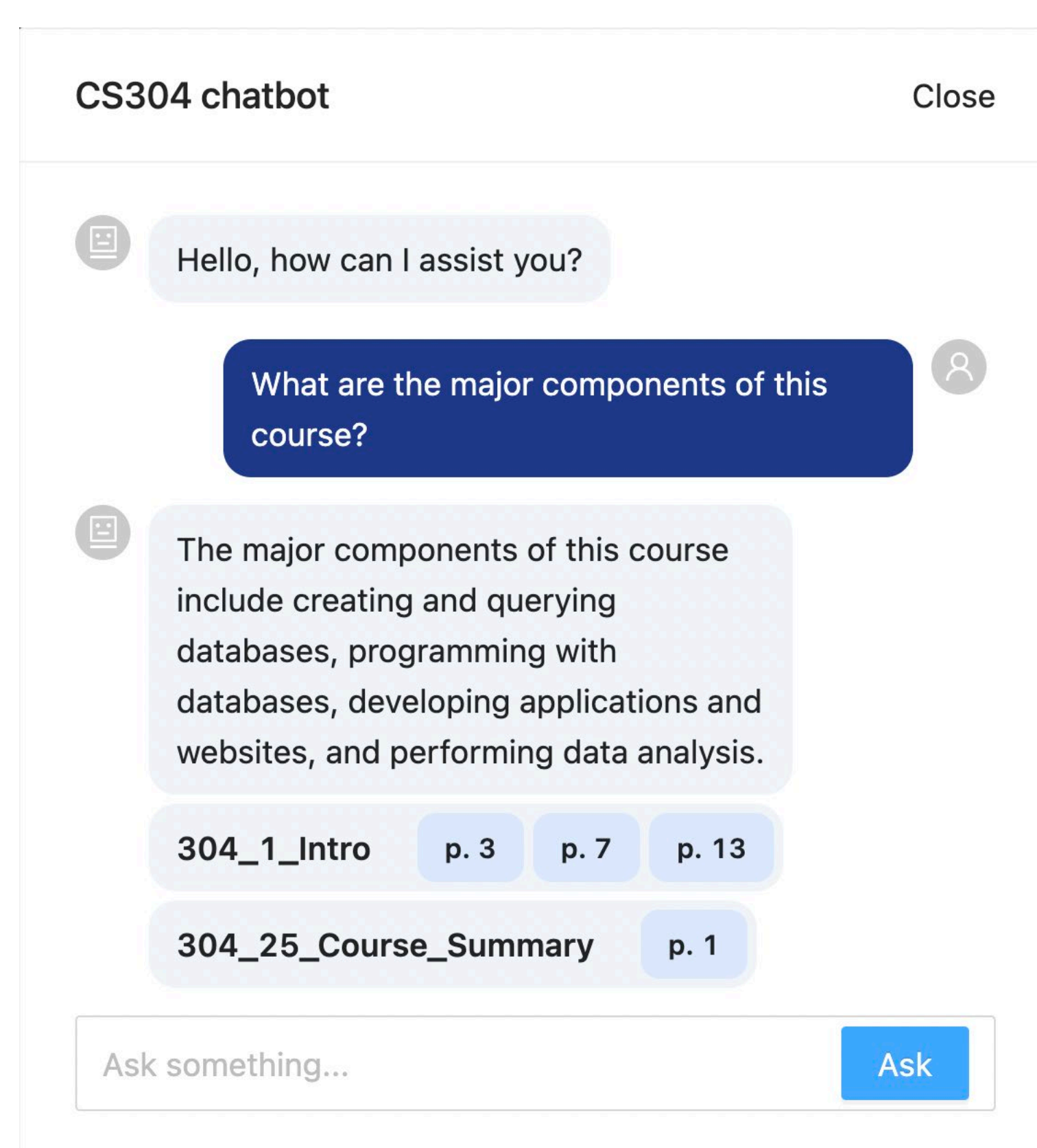
Labs should provide real-time feedback and require limited TA grading. Focus on helping students rather than evaluating.

Technology

HelpMe is a multi-channel support system:

- online queue providing visibility, fairness, efficiency, and reduced waiting
- **asynchronous questions with AI-generated answers and course-specific chatbot**

Labs use **virtualization** to eliminate use of computer labs at UBC and **auto-marking** to eliminate TA marking. **New question types** developed that are deployed using PrairieLearn.



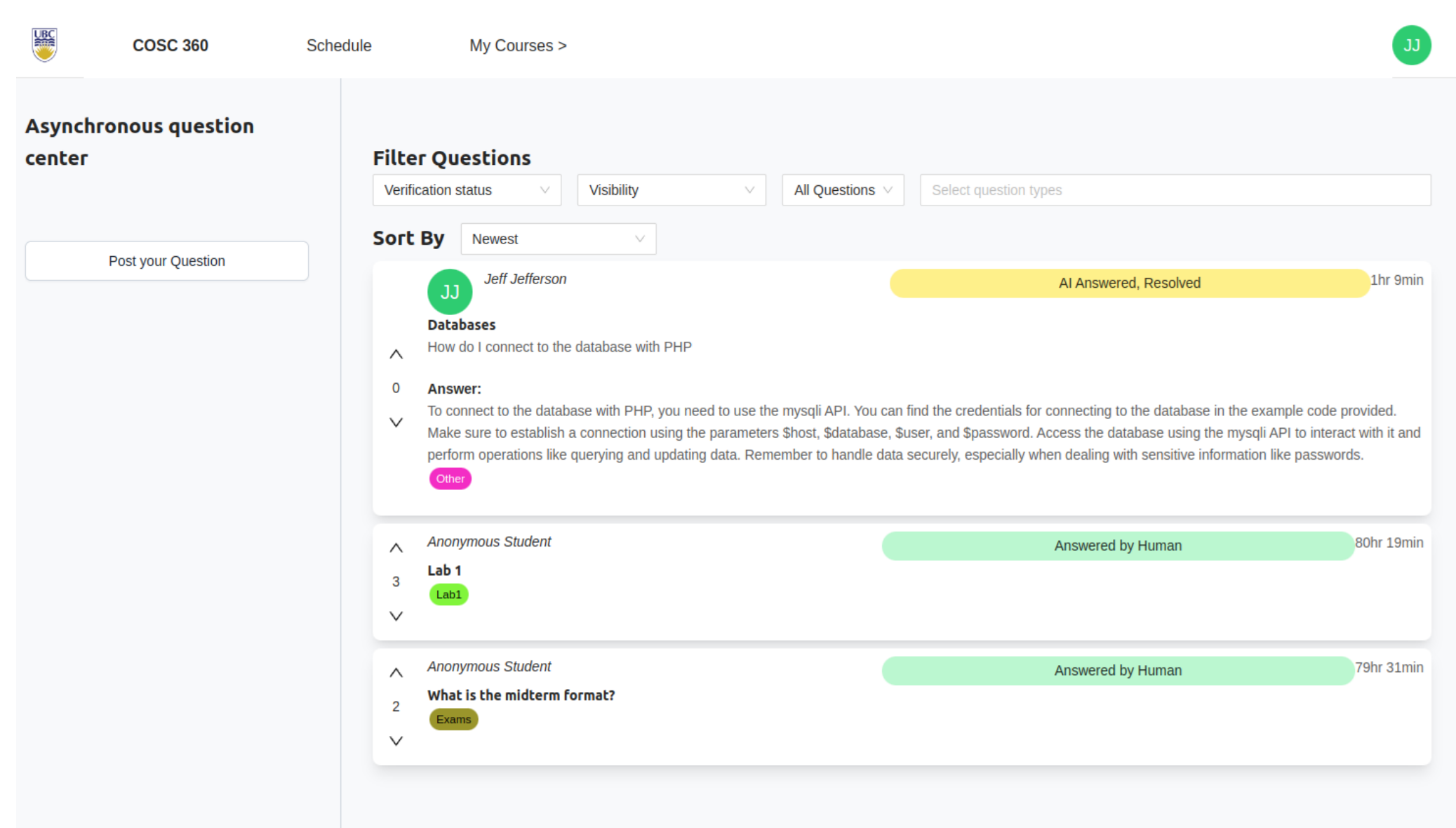
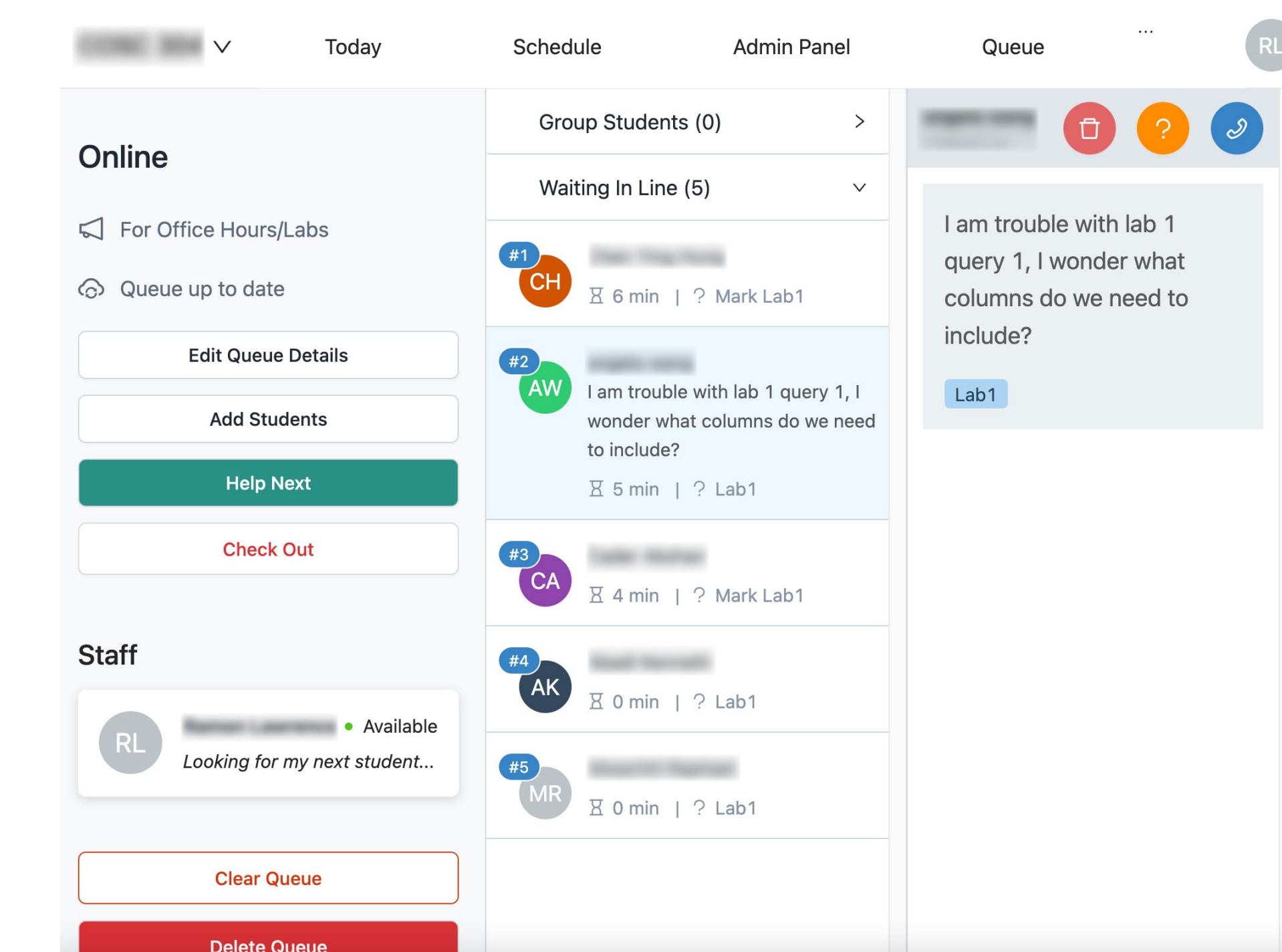
Accomplishments

Removed scheduled labs for two courses (COSC 304&404) **freeing up 24 hours per week of lab time** and allowing completion anywhere at students' convenience.

Reduced overall TA lab hours by 25% by decreasing marking time by 40%. More time spent helping students rather than marking. Introduced flexible virtual office hours with AI for student support on demand.

Developed new questions that are auto-marked and unique for each student.

HelpMe Student Support System



Feedback and Results

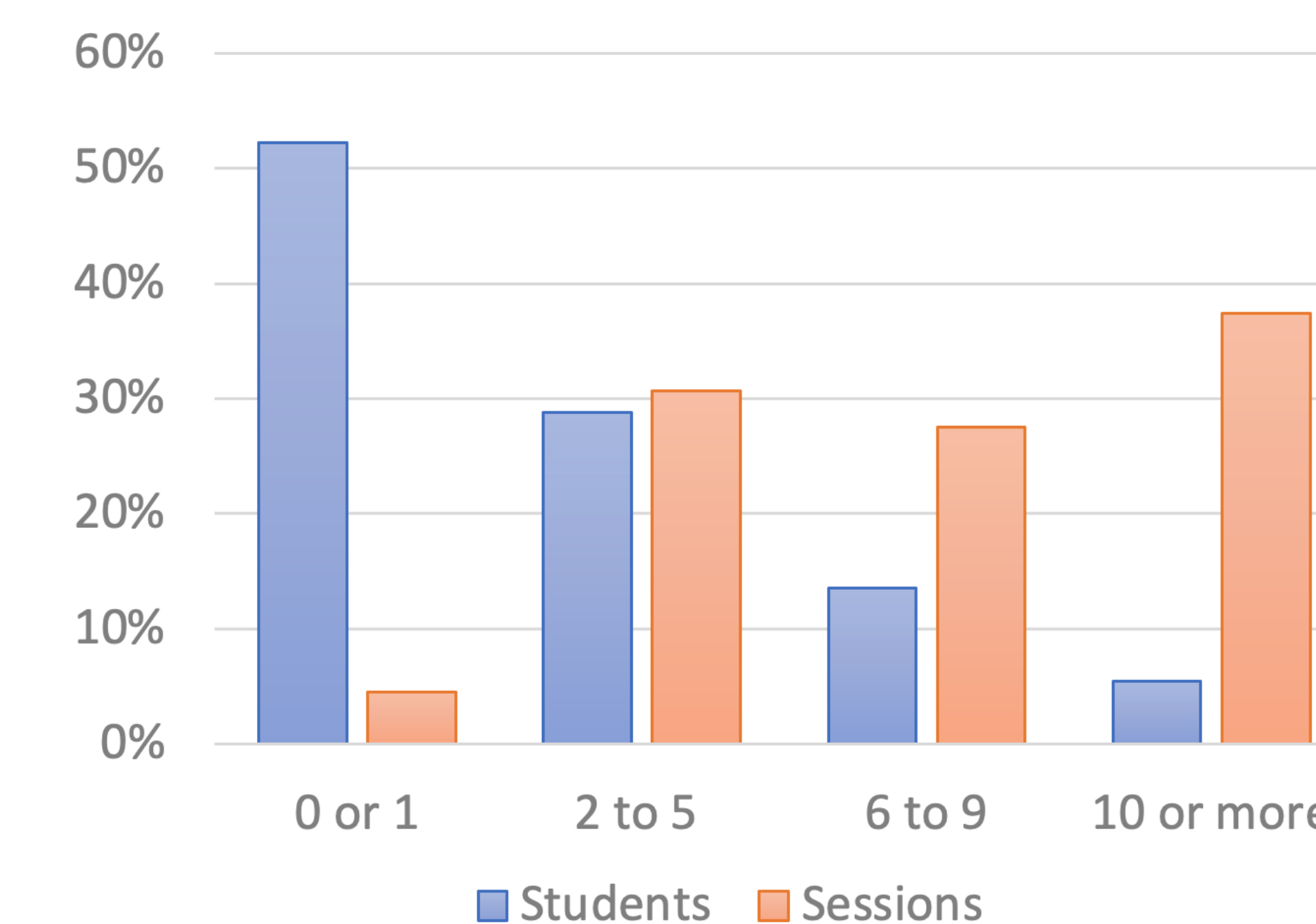
89% of students strongly agreed or agreed that virtual labs were beneficial.

Virtual help attendance varied widely. Students appreciated attending only when they needed help. Wait time < 4 minutes.

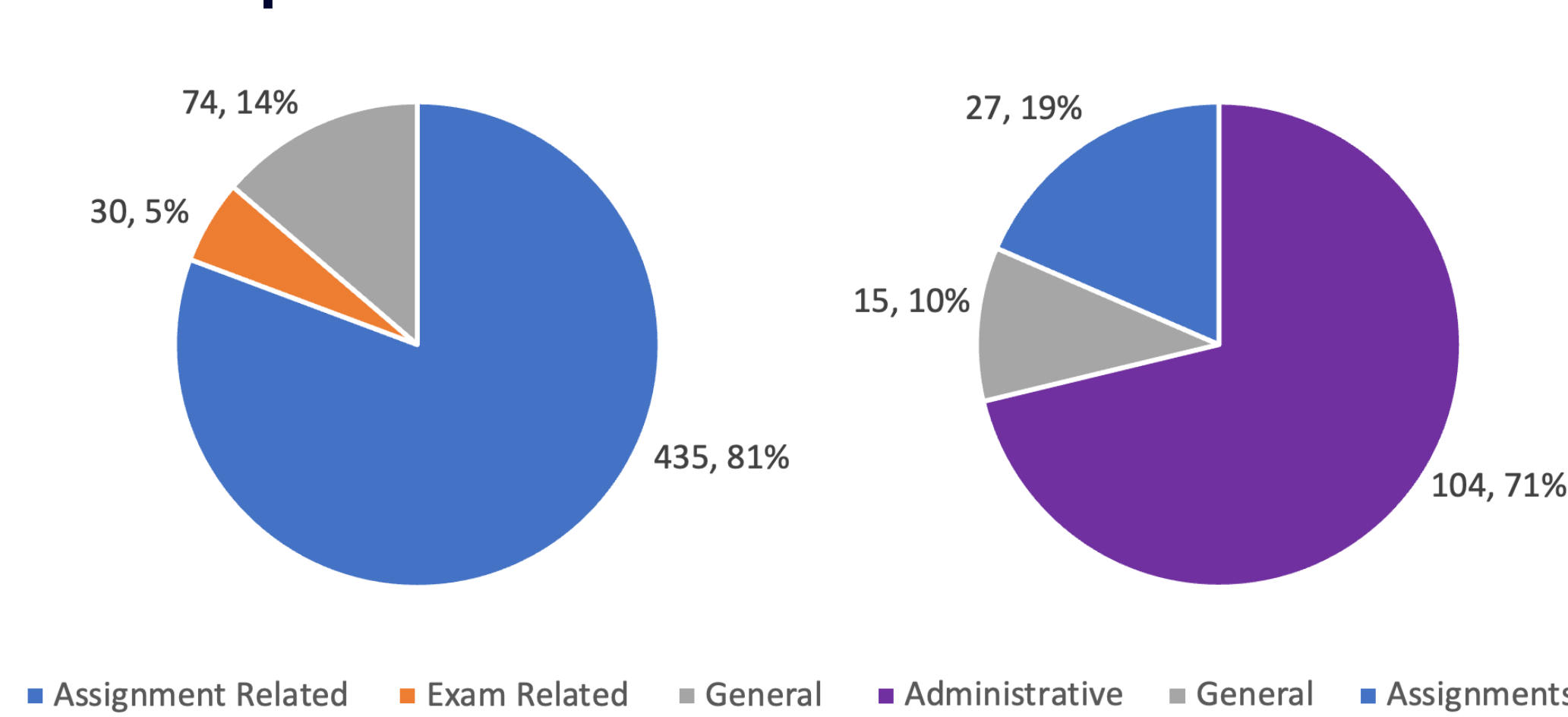
Performance on labs and overall course was unchanged (within +/- 3%).

Number of emails was reduced by using online help system.

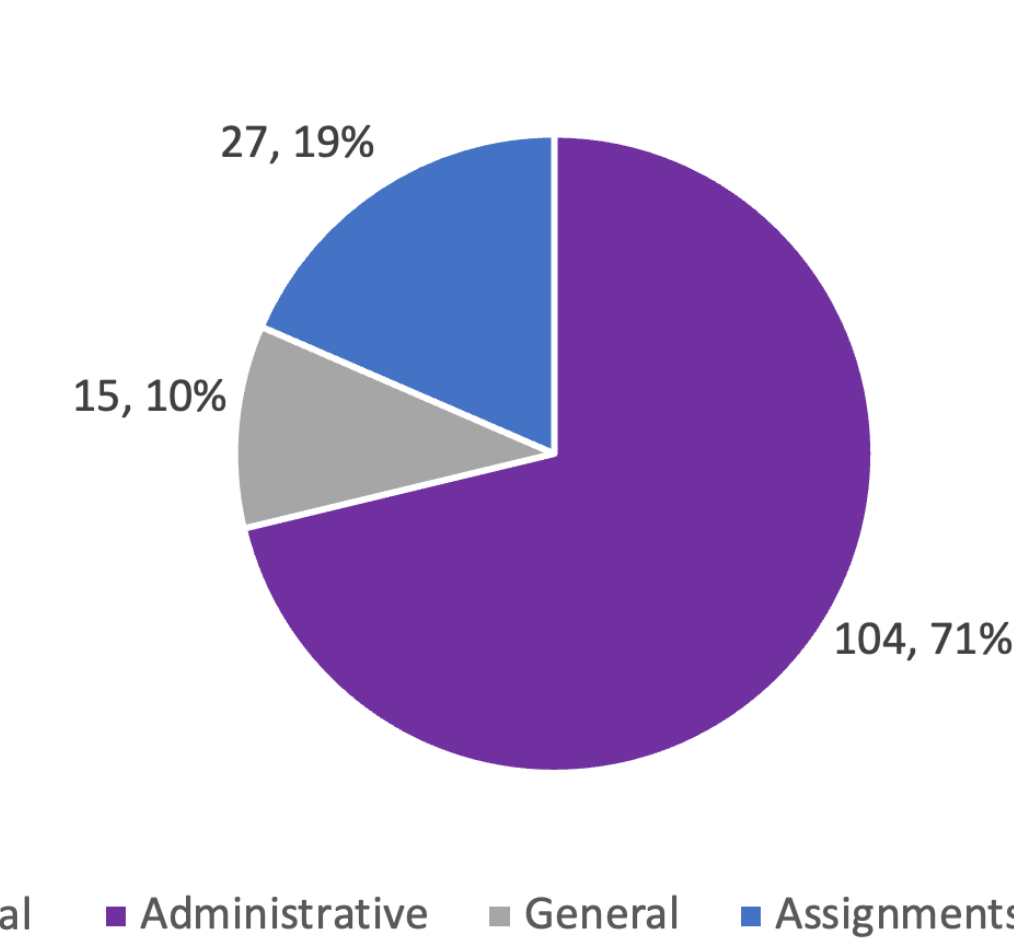
Virtual Help Sessions COSC 404 Spring 2022:



Help Sessions



Email



Next Steps

HelpMe system deployed in more courses across UBC with Canvas integration in progress to **support course-specific chatbots.**

Investigate improved computer-based exams when deploying in computer labs.

Demonstrate virtual lab approach for other instructors who can benefit.

Research Publications

- Kevin Wang and Ramon Lawrence. "HelpMe: Student Help Seeking using Office Hours and Email". ACM SIGCSE 2024.

- Kevin Wang, Jason Ramos, and Ramon Lawrence. "ChatEd: A Chatbot Leveraging ChatGPT for an Enhanced Learning Experience in Higher Education". INTED2024.

Acknowledgements

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