

# Enhancing Learner & Staff Experience with Course-Specific AI

Evidence base: Independent empirical study by bidt — Bayerisches Forschungsinstitut für Digitale Transformation. Summer Semester 2025.  
84 active courses · 10 Bavarian universities · 31 lecturers · 1,500+ student responses.



# Context & Problem Statement



## The Problem

While 88% of students already use generative AI for their studies , standard LLMs lack specific course context.

This leads to generic answers academic "hallucinations", or misinformation that does not match the specific curriculum.



## The Demand

Students explicitly request more AI integration within their specific courses.

Educational institutions must provide secure, course-scoped environments to ensure academic integrity.



## Key Statistics

Scale of Study: Empirical evaluation across 10 universities and 84 active courses

Database: A foundation of over 1,500 student responses

# Research Framework

Does course-specific AI support exam preparation?

Does it contribute to student learning outcomes?

How do instructors perceive the use of AI tutors in HE?

# Solution Architecture

## 1. Lecturer uploads material

PDFs, videos, texts → any format.  
Indexed as the AI's only knowledge source.



## 2. Student asks a question

The AI searches the upload materials for relevant passage.



## 3. Answer is generated

Grounded in course content only → source citation included in every response.



## Why this is different

Most AI tools like ChatGPT generate answers **from billions of internet sources** → no guarantee the answer is relevant to your course or even accurate.

Instead, RAG (Retrieval Augmented Generation) searches only the course materials uploaded by the lecturer and cites the source in every response.

# Lecturer View

Course overview → Lecturers manage materials, quizzes, and settings in one place.

The screenshot shows the course overview for "(Demo) Introduction to computer science" by Jann Winter. It features a "Share Course" button and a "Course Details" dropdown. Below this is a "Hello! How can I assist you today?" chat interface with a text input field and a microphone icon. The interface is divided into two main sections: "Course Content" and "Organizational".

**Course Content:**

- Materials:** Upload and manage course materials.
- Quizzes:** Create quizzes and generate questions.
- Dashboard:** Course insights & analytics.

**Organizational:**

- Edit Course:** Edit course details and adjust settings.
- Course Managers:** Add or remove course managers.

Material upload → PDFs and support resources uploaded directly into the course.

The screenshot shows the "Upload File" interface. It prompts the user to select the type of resource being uploaded. Two options are available:

- Learning Materials:** Visible to learners - Chat enabled - PDF only. Core content that learners can view and interact with via chat. Includes lecture scripts, worksheets, assignments, and any other material you want learners to directly access and engage with.
- Support Resources:** Hidden from learners - Improves AI output. Internal materials used to enhance AI responses and guide the chat with additional context. Can include older scripts, recordings, textbooks, podcasts, and other content that supports your course.

Below the upload options, there is a section for "Course Materials (58)" with a "processing" status and a note: "Reprocessing the file may take a few minutes." A list of "Learning Materials" is shown, including:

- 2026-02-02 Eidl Supplement (PDF, Uploaded: 2/23/26, 2:04 PM)
- Chapter 0 (SW Engineers wont be replaced) (PDF, Uploaded: 2/23/26, 2:08 PM)
- Gastvortrag Entrepreneurship (PDF, Uploaded: 2/23/26, 2:07 PM)
- Kapitel\_1-3 (PDF, Uploaded: 2/23/26, 2:09 PM)
- Kapitel\_4-5 (PDF, Uploaded: 2/23/26, 2:09 PM)
- recursion

# Lecturer View

AI quiz generation → Quizzes created from course content, edited before publishing.

### Generate Questions with AI

Topic: Introduction Change Topic

What content should the questions cover?  
 This Content should cover the basic understandings of computer science that students should understand in the first semester

Number of Questions:  Multiple Choice\*  
 Free Text\*

Question Difficulty\* ?  
 Easy  
 Medium  
 Hard

Advanced Settings ▼

Generate Questions Select material

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### Review questions

Publish Save for later Delete All

Question: 1 Medium Free Text ✎ 🗑️

**What are some core concepts of computer science introduced in the first semester of this course?**

Correct Answer

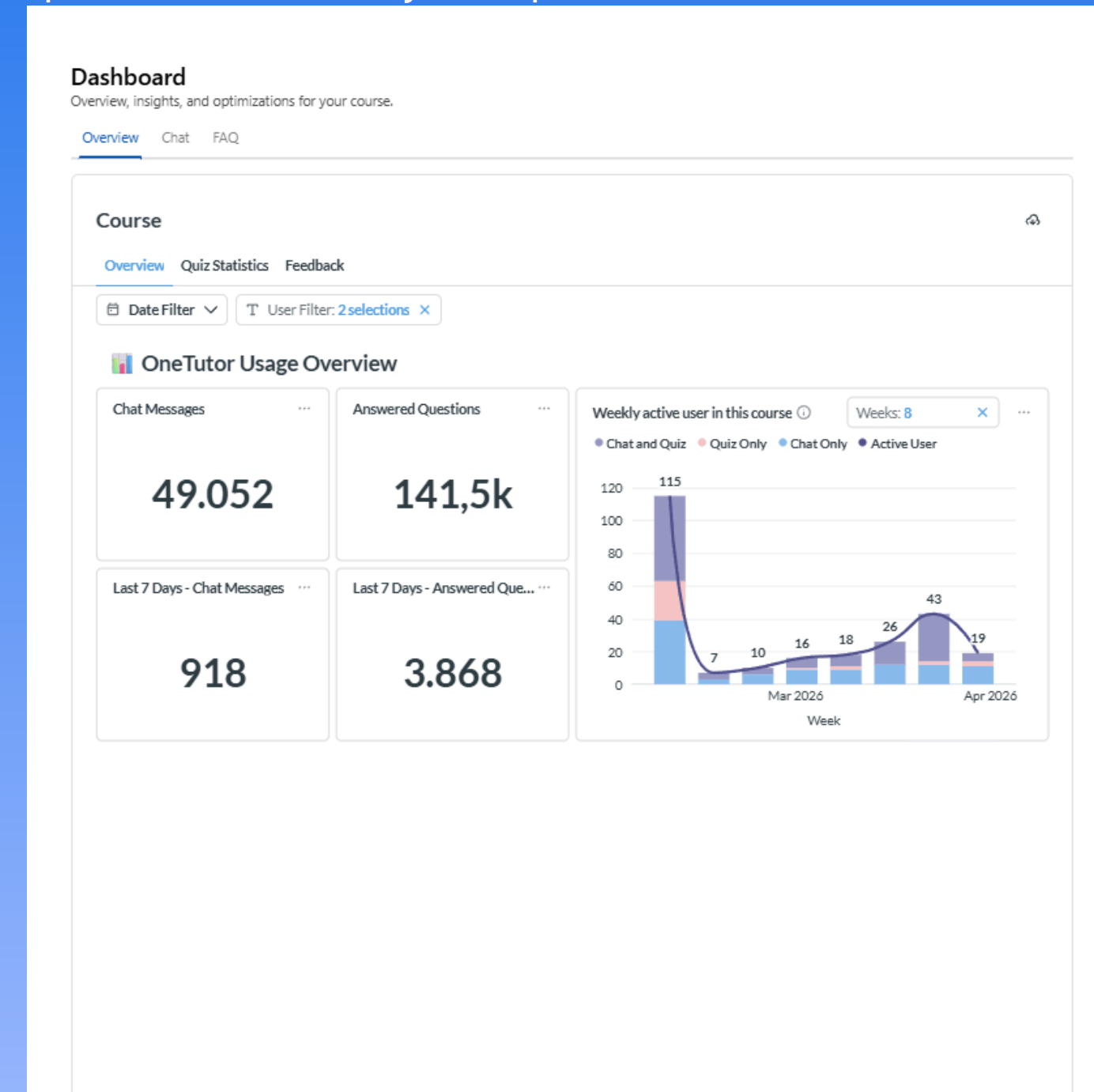
- Programming fundamentals: Java language principles
- Object-oriented programming (OOP) concepts
- Control structures like loops (e.g., for loops)
- Basics of data types and data structures (e.g., arrays)
- Recursion and algorithm basics
- Importance of active participation and practice
- Overview of software testing techniques

Question: 2 Medium Free Text ✎ 🗑️

**Explain how object-based programming differs from object-oriented programming concepts.**

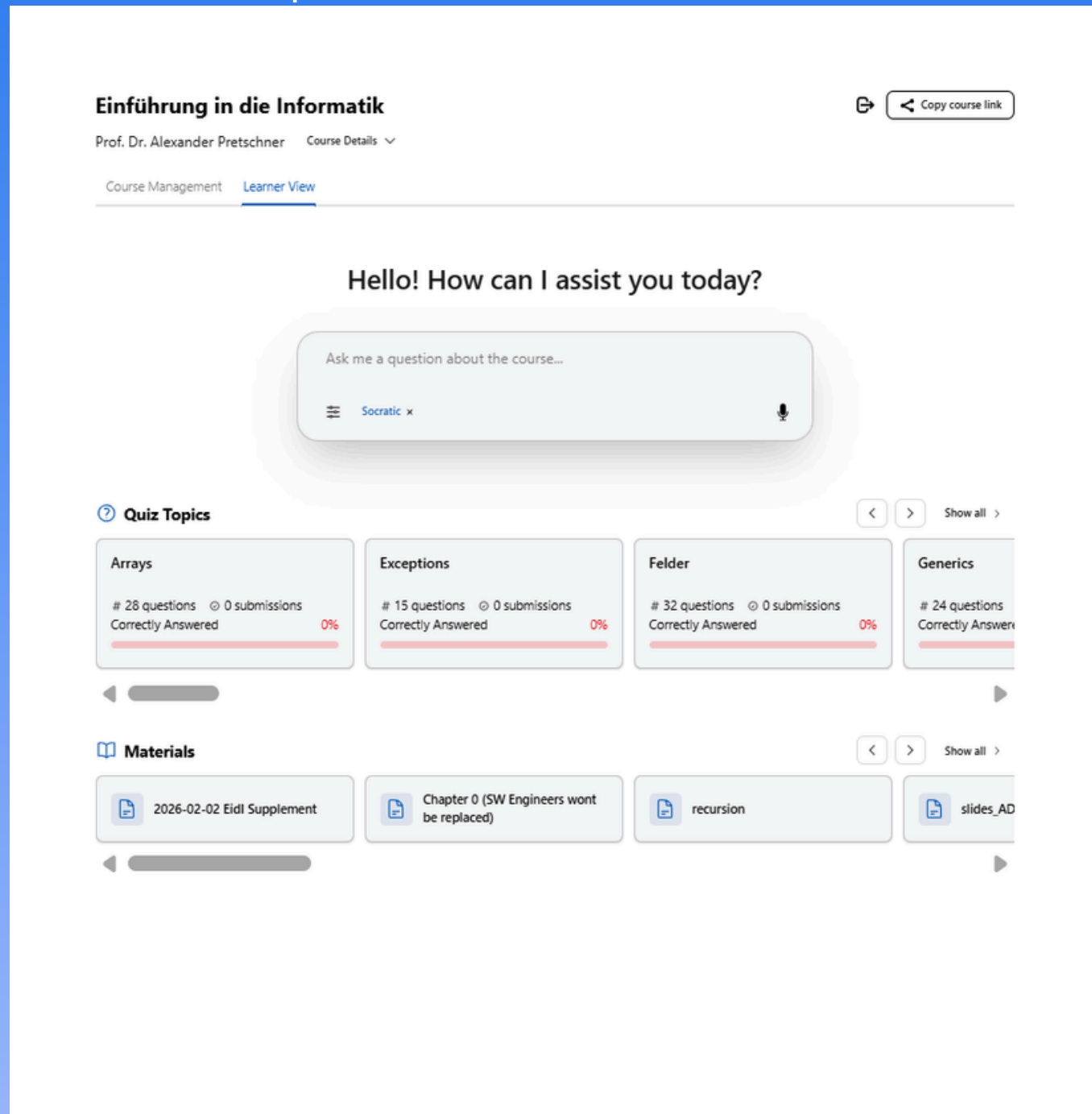
Correct Answer

Analytics dashboard → Aggregated view of student questions, chat activity, and quiz results.

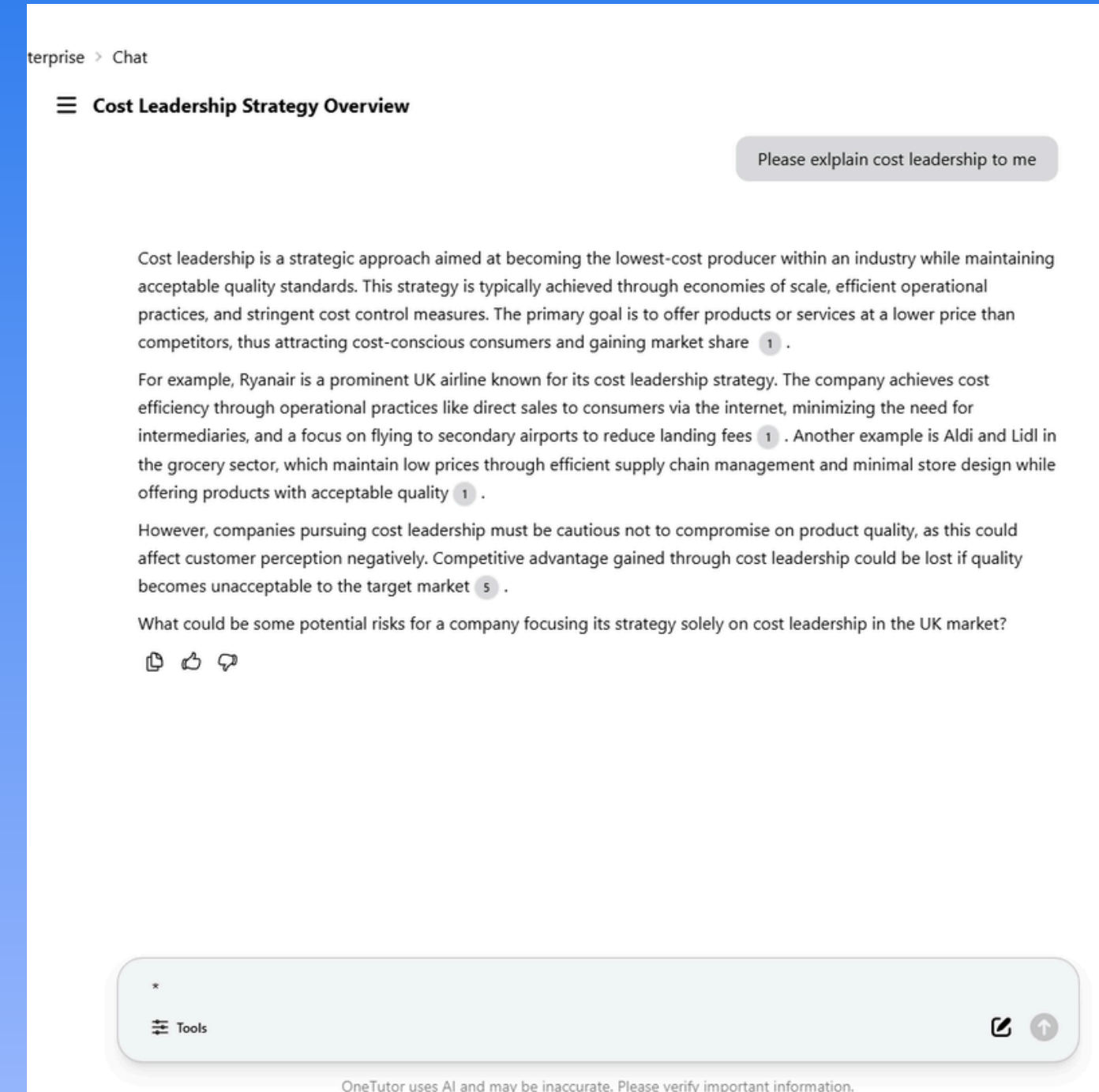


# Student View

Student dashboard → Course materials, quiz topics, and chat interface in one place.



AI chat with citations → Answers grounded in course content, with source references included.



# Student View

Multiple-choice quiz → AI-generated questions to test knowledge and prepare for exams.

Quiz

3 6

Which concept involves querying books based on frequency and relevance of terms like 'object' and 'oriented'?

- Keyword Indexing
- Vector Space Model
- Triangle Classification
- Classical Quiz
- Equivalence Partitioning

Explain Next Question

Finish Quiz

Free-text quiz → Students answer in their own words, with feedback after each response.

Quiz

5 6

What is equivalence partitioning in testing?

Equivalence partitioning divides input data into groups where all values behave similarly, so you only need to test one value per group.

**Evaluation** ✓ Correct 4 / 5 ★

- Correct: You correctly explained the concept of dividing input into groups and testing one representative from each.
- Points to Improve: You could add that this method helps reduce the number of test cases needed overall.
- Notes: Good job on identifying the key idea of equivalence partitioning. Just mention how it minimizes testing effort for a complete answer.

Explain Next Question

Finish Quiz

# Student Experience

## 86%

Found OneTutor helpful for exam preparation

In OneTutor survey · n=min. 239\*

## 98%

Would recommend it for the same course next semester

In OneTutor survey · n=min. 239\*

## 72%

Said chat responses contributed to their learning

In OneTutor survey · n=min. 241\*

## 65%

Said quizzes contributed to their learning

In OneTutor survey · n=min. 241\*

## How students use it:

- Used primarily for exam preparation and identifying & closing knowledge gaps
- Enables students to ask questions they would not raise in class
- 90% of students used the chat function
- In a classroom survey (n=270), 80% of students actively used OneTutor → those who opted out cited personal learning preferences, not AI aversion.

## Satisfaction:

- 86% satisfied or very satisfied with the chat function
- 82% satisfied with multiple-choice quizzes
- OneTutor rated as helpful for exam preparation as course scripts and lecture notes, above other AI tools and internet sources
- 68% felt well prepared for their exam through OneTutor

# Staff Experience

**84%**

Would deploy OneTutor again in the same course

Lecturer survey · n=min. 29 \*

**97%**

Consider generative AI in HE fundamentally worthwhile

Lecturer survey · n= 31 \*

**7.2**

Lecturer Promoter Score out of 10

Lecturer survey · n= 31 \*

**2.4**

Average lecturer grade  
1 = excellent

Lecturer survey · n= 31 \*

## How lecturers use it:

- 66% regularly review quiz results across the cohort
- In 70% of active courses, lecturers created quizzes
- Average of 43 multiple-choice and 31 free-text questions created per course

## What lecturers report:

- 84% would use OneTutor again in the same course
- 75% regularly review student questions and AI responses
- Viewed as a meaningful complement to existing teaching methods

# Key Takeaways

01

## Learner Experience

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OneTutor creates a safe space → students ask questions freely, save time, and study complex content at their own pace. Those who engage with it consistently report feeling better prepared for their exams.

02

## Staff Experience

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Technology alone is not enough. Successful adoption requires institutional leadership, clear guidelines, and thoughtful integration. Lecturers with support unlock real value → those left without guidance hesitate.

03

## Curriculum Development

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OneTutor works best as a deliberate complement to existing teaching → not a replacement. The right environment, where staff and students understand how and why to use it, makes the difference.

# Get in Touch

Interested in piloting  OneTutor at your institution?

[contact@onetutor.ai](mailto:contact@onetutor.ai)

[onetutor.ai](https://onetutor.ai)

Currently deployed at 50+ institutions worldwide.