

NURSING EDUCATION · MARYVILLE UNIVERSITY

Reducing nursing attrition with explainable AI

Bast built Maryville a tutor that organizes course knowledge around the way students actually recall it under exam pressure. Two graduate nursing courses that had been losing roughly half their students came back close to zero.



INSTITUTION

SCALE

DOMAIN

DELIVERY

Maryville University

10K students
6,200 onlineGraduate nursing
pathophysiology

Canvas & Slack

\$1.2M

Attrition cost avoided across two courses

+38%

More graduating nurses, semesters 1 and 2 combined

344 → 764

Students served, Summer to Fall 2024

SXSW

EDU 2024 main-stage case study, 900 in the room

The Bast team has been incredible to work with. They are ahead of the AI industry in their vision for Trusted AI.

PHIL KOMARNY · Chief Innovation Officer, Maryville University

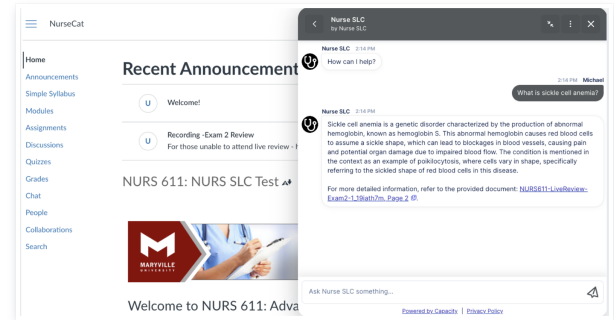
What it took: a year of working alongside the university to understand the problem and make sure we were solving the business problem underneath it - the part most teams never realize they have to do. You have to understand the opportunity first, and then make the extra time to get every human aligned on a clearly articulated intent: use AI to augment the people and the business, and produce a concrete result you can stand behind. A year went into making the pieces fall into place, and somewhere in it we found the real shape of the work - that the map, the ontology, has to mirror how a nursing student actually needs to retrieve the information, so the knowing stays with her when the exam is in front of her and the pressure is on.

We studied the problem before we built anything

The courses asked students to hold too many mental models at once. Pathophysiology and pharmacology stack system on system, week after week, and the exams reach all the way back. By week six a nurse could explain what she'd learned that week but had already lost the kidney material from week two. The knowledge wasn't sticking in the shape the exam demanded it back - that, not weak students or hard content, was the real reason they were leaving.

We wanted the fix to be social, not solitary. Earlier work had put students in a Slack channel where they could see the questions their classmates were asking, and one good answer helped more than one person at a time. From a seat on the board of trustees we had watched how tight these cohorts run - in the speech and language pathology pilots, classmates stayed in each other's lives for years, bridesmaids and godparents and all of it. We wanted nursing to feel like that: a community pulling one another through, not a student alone with a chatbot at midnight.

Had we walked in with the usual assumption - that AI is here to replace the teacher - we would have failed, and the faculty would have been right to throw us out. Instead we put the Social Learning Companion inside Canvas, where students already lived, as something they could question, draw analogies from, quiz themselves against, and interrogate in their own language, Spanish included.



The Social Learning Companion answering inside Canvas - and citing the exact source document and page it pulled the answer from.

Most of the fear traced back to one thing: students didn't trust that an AI wouldn't make things up, so they had been studying on other platforms that did exactly that. Bast retrieved only the course material that lived in Canvas - nothing invented, nothing scraped from the open web. Because the system showed its work, we could even catch exam questions that tested material the assigned weeks hadn't taught yet, and fix them.

None of this came from a requirements document. It came from sitting in on the courses and listening to where students got stuck. **And the method turned out to be repeatable:** Maryville now builds Social Learning Companions across the university, and the demand has flipped the script - faculty and students ask for AI as augmentation, not as a threat to teach around.

AI is meant to augment humans - augmenting students so they can focus on the human work, not the examinations and the paperwork.

BETH RUDDEN "Better humans, not just smarter machines"

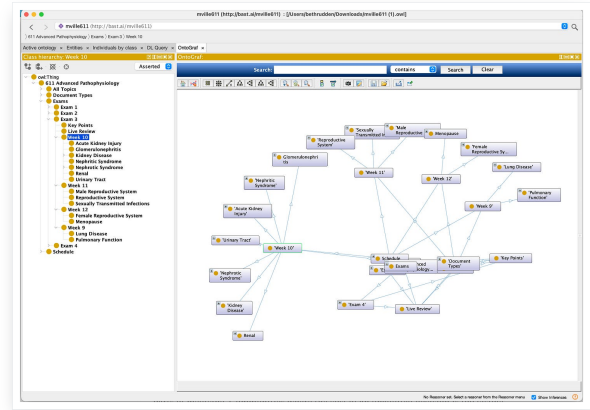
The map pointed the way and carried the breadcrumb

We don't believe in one grand ontology to rule them all - we fit form to function, the right structure for the right job. At Maryville the job was a map for retrieval, and what made it trustworthy was that the map remembered exactly where it had been.

THE MARYVILLE WORK · ONTOLOGY AS A MAP

A map for retrieval

The structure records where every answer comes from and pulls only the course material a student actually needs for the exam in front of them. Build it around how a nurse has to recall the knowledge, and the knowing stays put.



The Maryville ontology in OntoGraf - exams, weeks, and topics as typed, traceable relationships rather than a black box.

LINEAGE & PROVENANCE

Every answer carries a breadcrumb back to the **exact chunk of text, the paragraph, and the page** it came from. Nothing the companion said was unverifiable, and the registrar could trace any claim to its source. The map pointed the way, and it carried the breadcrumb home.

answer → topic → week → document → page ↴

This is why Maryville could trust it. Every analogy, quiz question, Jeopardy-style prompt, and mnemonic the companion produced was built from the course material - and **Bast could prove it, every single time.**

WHAT SURFACED LATER, WITH OTHER CLIENTS

The same instinct turned up two more uses across later engagements - different shape, same discipline of provenance underneath.

ONTOLOGY AS · FILTER

A set of lenses

The same material seen different ways - by week, by exam, by topic - so a reader pulls exactly the slice they need and none of the noise they don't.

ONTOLOGY AS · REASONING

A strategy for fact

The hip bone connects to the thigh bone; these were the topics in week three; week three rolls into Exam 1. The structure carries the relationships that let a system reason from one fact to the next.

The throughline never changes: **keep each ontology small, configurable, and versioned, and never produce an output you can't trace to its source.** That discipline is how you earn an AI an institution keeps trusting.

THE BUSINESS OUTCOME

Pulling the thread all the way through

Most of the year wasn't model-building. It was helping Maryville's finance team compute the true per-student cost of recruitment and conversion, helping instructional designers write structured definitions of their own content, and helping the registrar build the data lineage to count an attrition number they could defend. None of it was in the statement of work. All of it was the work.

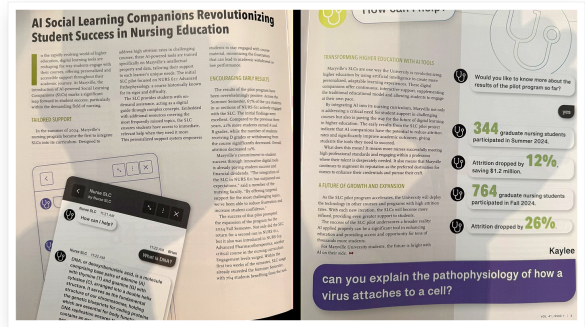
That thread - from a course-structure problem to a defensible business number - only gets pulled if someone with authority clears the way. Phil Komarny did. His leadership put the right people in the room and turned a technology pilot into decisions the institution could stand behind.

Then the work went on the road. It took the main stage at SXSW EDU 2024 - "AI's Leap: Shaping Tailored Learning," 900 in the room - and has been showcased across the Salesforce and higher-education community Maryville helped build. Two years on, their contrarian view - that how you manage your data is what makes an AI project actually work - is still ahead of the trend, and still in demand.

FROM THE CLIENT

The latest results from fall semester are even better. Fantastic work by the Bast team.

Mark Lombardi · former President, Maryville University



The Maryville results, featured in ShiftForward magazine: 344 students in Summer 2024, attrition down 12% and \$1.2M avoided; 764 students by Fall, attrition down 26%.

WHAT CARRIED OVER

The companions didn't stop at two courses. Maryville now runs Social Learning Companions as a standing program across the university and builds its own - the method, the ontology, and the audit trail came with the result.

With the right partners, patience, and persistence, AI can transform from buzzword to bottom line. Bast AI is explainable AI, which is what makes it adopted AI.

BETH RUDDEN CEO, Bast AI · on LinkedIn



Making trust scalable.

Explainable AI grounded in ontology, so every answer can be traced to the structure that produced it. bast.ai