

Embedding the pharmacist and patient conversation as part of assessment using AI tools in a UK school of Pharmacy

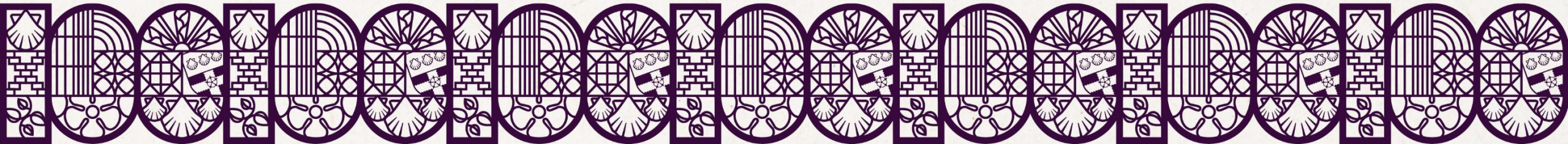
Rachael Stannard
Lecturer in Pharmacy Practice

July 2026



Outline

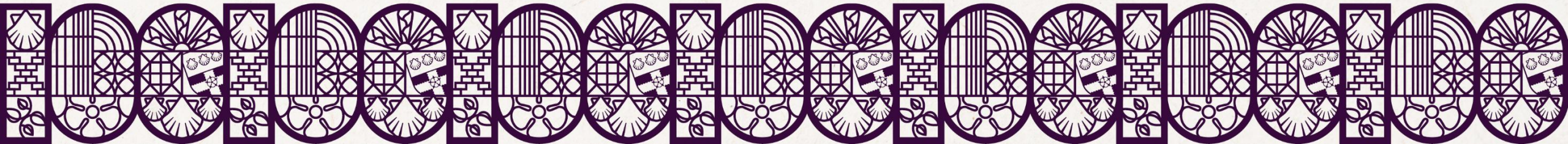
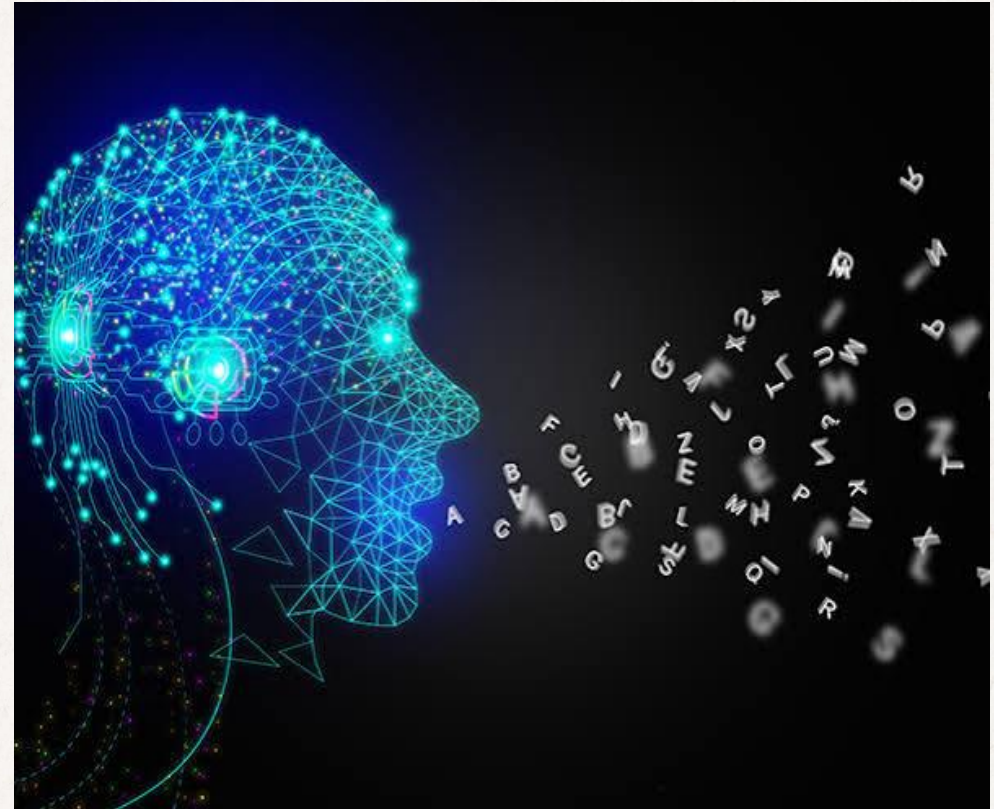
- Generative AI in education and the reason for change
- The assessment in question
- SimConverse as a tool for communication skills
- The change to assessment
- Decisions about the assessment
- Finding and conclusions



Generative AI and it's place in higher education

"Every time you use a Generative AI tool for saving time or as a shortcut and not as a developmental tool, you are likely missing out on a learning opportunity. Focusing on the end-product of an assignment is not helpful for educational purposes, as most of our learning happens through the **process** of working and creating.."

<https://libguides.reading.ac.uk/generative-AI-and-university-study/how-to-use-AI>

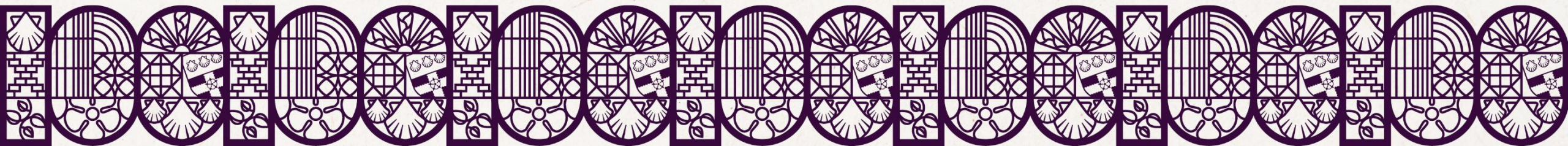


Respiratory Case-based Coursework

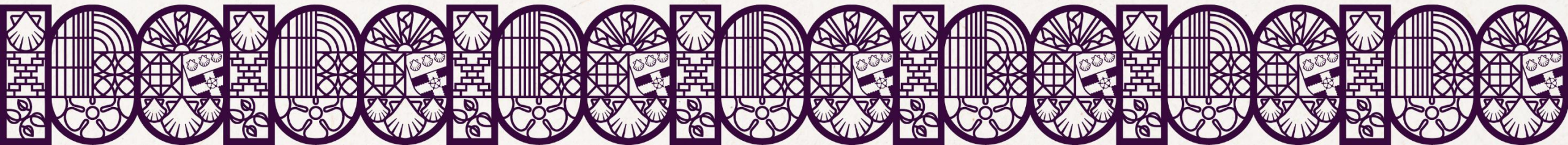
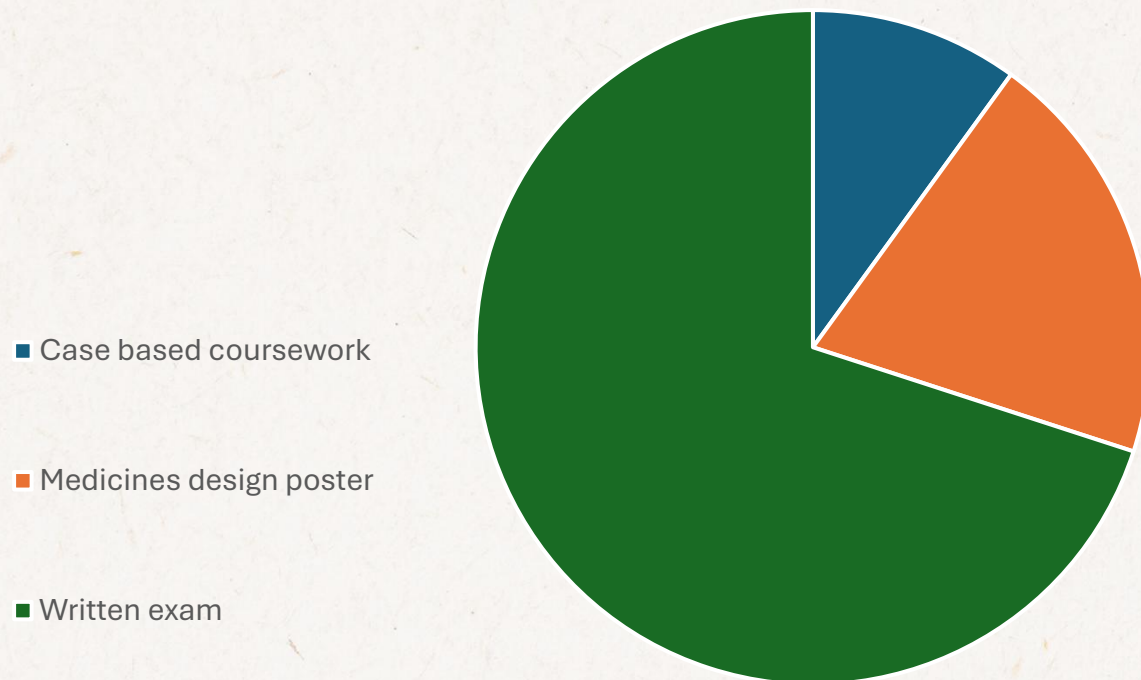
Professional Practice 4 – PM4PY1		60
Clinical Therapeutics 5 PM4PY3	20	Optional modules 20
Research skills PM4PY2	20	
Professional Practice 3 – PM3PY1		40
Clinical Therapeutics 3 PM3PY2	Clinical Therapeutics 4 PM3PY3	
Professional Practice 2 – PM2PY1		40
Clinical Therapeutics 1 PM2PY2	40	Clinical Therapeutics 2 PM2PY3 40
Professional Practice 1 – PM1PY1		40
PM1PY2	20	PM1PY4 20
PM1PY3	20	PM1PY5 20
Semester 1		Semester 2

Clinical therapeutics 1

Introduces therapeutic themes of respiratory and gastro-intestinal diseases and integrates the science into clinical practice.



Assessment structure and contribution towards module



- SimConverse is a simulation platform that uses a generative AI language model in the creation of medical scenarios.
- These scenarios utilise a character within a clinical scenario and then assess the user's ability to communicate against a specified rubric.
- These allow learners to practice the most difficult aspects of a patient encounter and to build confidence in doing so.
- The scenarios are designed to be safe, repeatable, reflective and customizable.

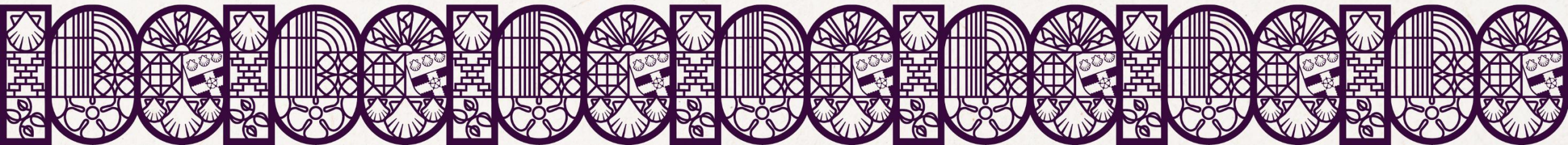
Talk with David

DUE DATE	TASK TYPE
Jun 12, 1:13pm	Conversation Task 



David Heathrowe

 Audio



Case based coursework

2024/25

100%

- 500-word evidence based, self directed piece relating to a case.
- What is the rationale for discontinuing inhaler X and starting inhaler Y. Link your answer to the pharmacology of both medications and appropriate guidelines.



2025/2026

80%

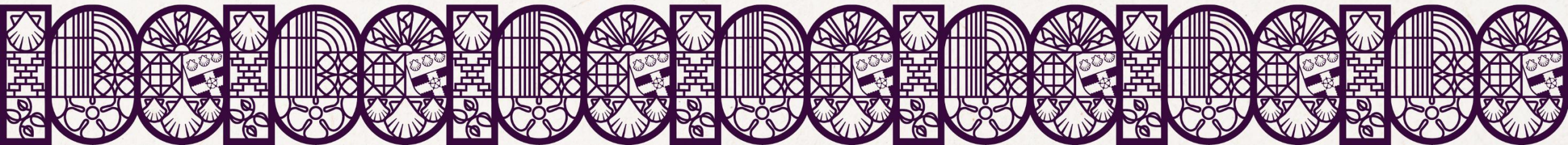
500-word evidence based, self directed piece relating to a case.

AND

20%

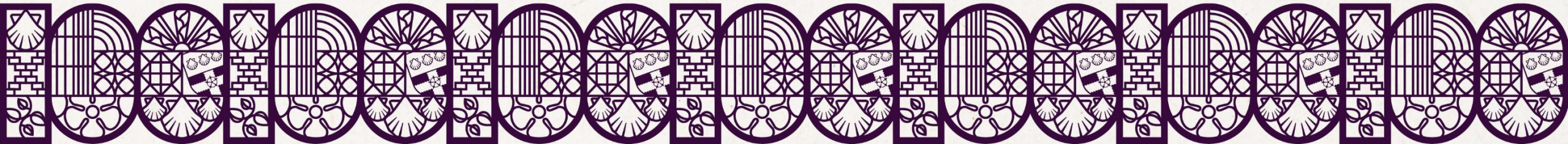
SimConverse element

Students needed to counsel the patient on the new inhaler (inhaler Y) and then provide a reflective account.



Decisions about the assessment

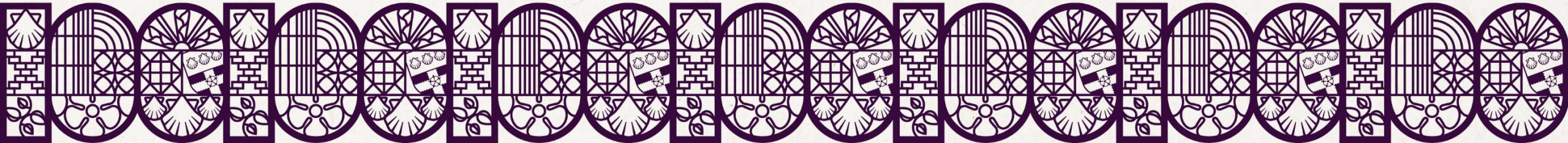
- Proportion of marks
- Timeframe for students to complete
- Attempts
- Reflective account
- Rubric content



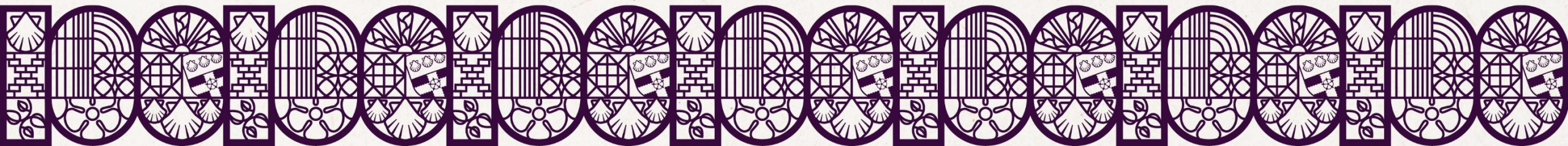
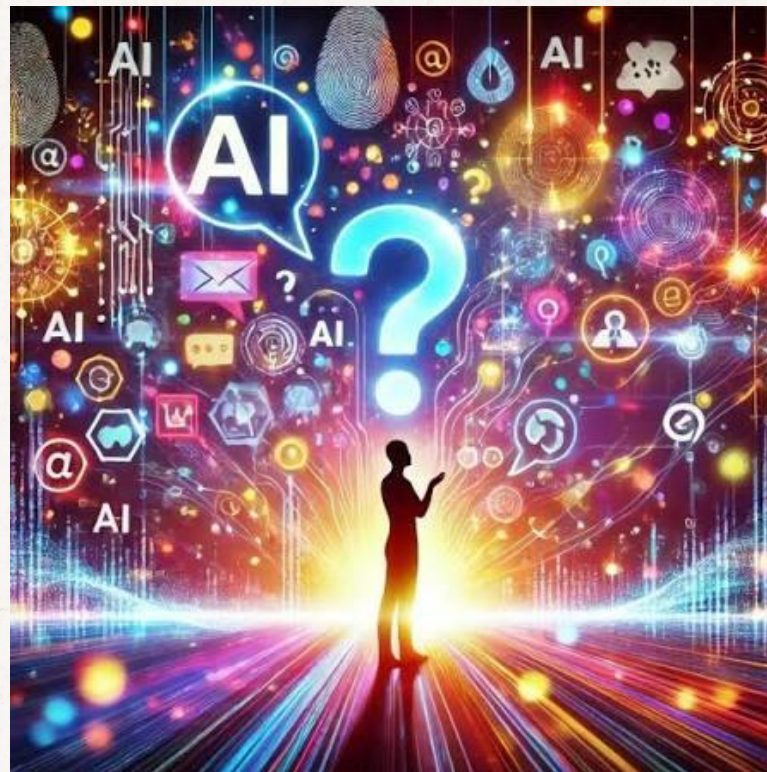
Conclusions

- All 157 students completed the activity within the timeframe.
- 145 students achieved full marks (92%)
- Moderation explored issues with hallucinations or language barrier, fortunately these were rare
- One issue of potential academic misconduct

Academic staff keen to explore the use of this type of assessment for the next academic year, but with more complexity and higher weighting.



Questions?





Embedding Adaptive Expertise in Pharmacy Education: A Curriculum Transformation for Future-Ready Graduates

University of Toronto

Naomi Steenhof | Natalie Crown | Jamie Kellar



What are we preparing graduates for?

Prescribing in uncertain situations

Managing increasingly complex patients

Working across interprofessional teams

Providing expanded clinical services

Practices in evolving systems





Our default response

Add more content



Overload

Fragmentation

Burnout

Shallow learning

What Actually Defines Expertise?

NOT the amount of knowledge we know

BUT

How knowledge is structured

How knowledge is used

How knowledge is applied in unfamiliar situations

Especially when problems are unclear or don't fit





Adaptive Expertise

A form of expertise that combines efficient performance with the ability to flexibly adapt knowledge in novel and uncertain situations.



If Adaptive Expertise is the Goal...

Emphasize understanding, not just coverage

Create space for struggle and discovery

Maximize variation across contexts

Structure learning over time





Our response: redesigning the curriculum

Curriculum Design

- Integrated structure
- Spiral across concepts

Learning in Practice

- Early, longitudinal experiential learning

Assessment and Conditions

- Programmatic assessment
- Structured pacing and wellness



Early signals and implications

Strong applicant interest

Positive stakeholder response

Feasible, sustainable model

References

Hatano, G., & Inagaki, K. (1986). Two courses of expertise. In H. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Children development and education in Japan* (pp. 262-272). New York: Freeman.

Kelley KA, et al. The challenge of curricular overload in the pharmacy academy. *Am J Pharm Educ*. 2023;87(9):100079.

Mylopoulos M, Brydges R, Woods NM, Manzone J, Schwartz DL. Preparation for future learning: a missing competency in health professions education? *Med Educ*. 2015;49(12):1082–1092.

Mylopoulos M, Kulasegaram K, Woods NN. Developing the experts we need: Fostering adaptive expertise through education. *J Eval Clin Pract*. 2018 Jun;24(3):674-677.

Steenhof N, et al. Before the first class: Engaging students early in curriculum design to support program reform. *Med Teach*. 2025:1–4.



MONASH
University

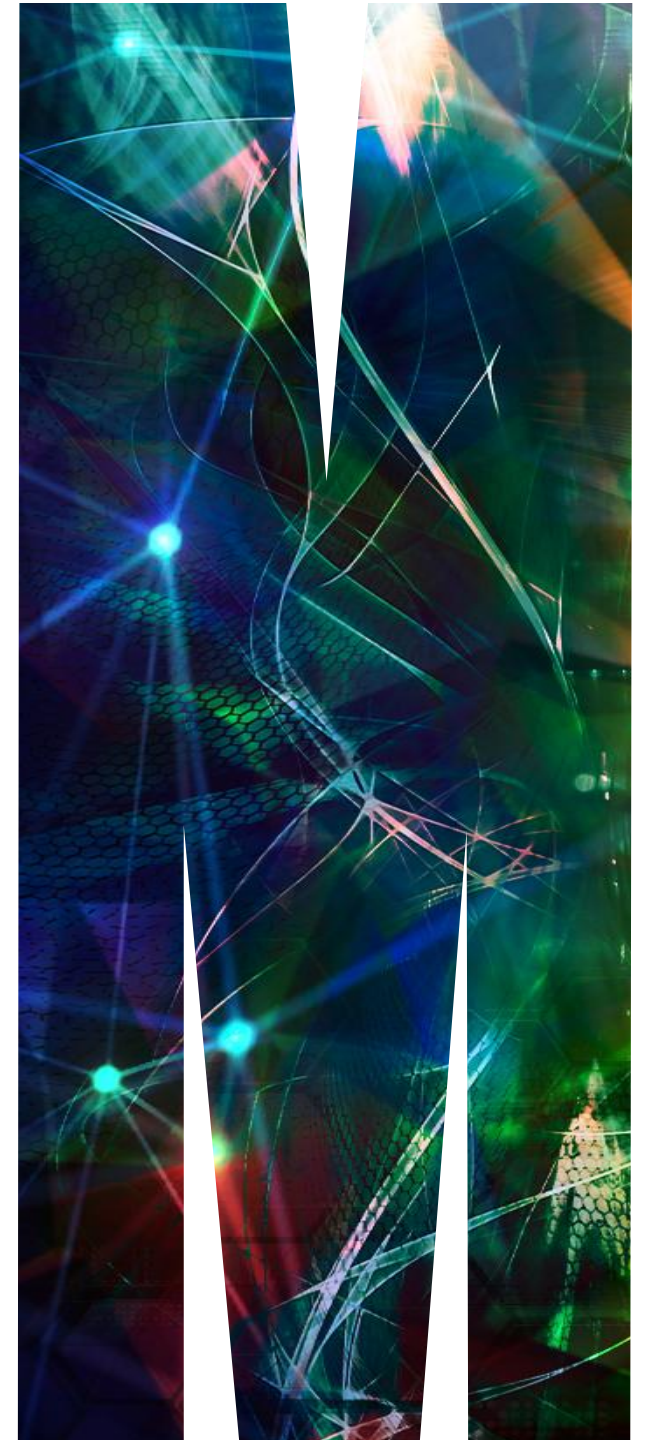
Using MyDispense for Pharmacy Students to Apply Bioethical Principles

Carmen Abeyaratne¹, George Tan¹, Amal Al-Bakri² and
Keith Sewell¹

1. Monash University, Faculty of Pharmacy and Pharmaceutical Sciences

2. The University of Jordan, Department of Pharmaceutics and Pharmaceutical
Technology

Ethics approved by MUHREC (#46163)



Background

MyDispense is a free online virtual simulation software developed by Monash University. The software facilitates students to practice, apply, and hone the skills of a pharmacist in a realistic environment without the potentially life-threatening consequences of a real-life error.¹

Teaching and learning bioethical principles in the 2nd-year of the undergraduate Pharmacy degree is predominantly conducted via lectures, workshops, and self paced learning using online content on Moodle.

1. MyDispense, Faculty of Pharmacy and Pharmaceutical Sciences. Available from: <https://www.monash.edu/pharm/teaching-learning/mydispense>

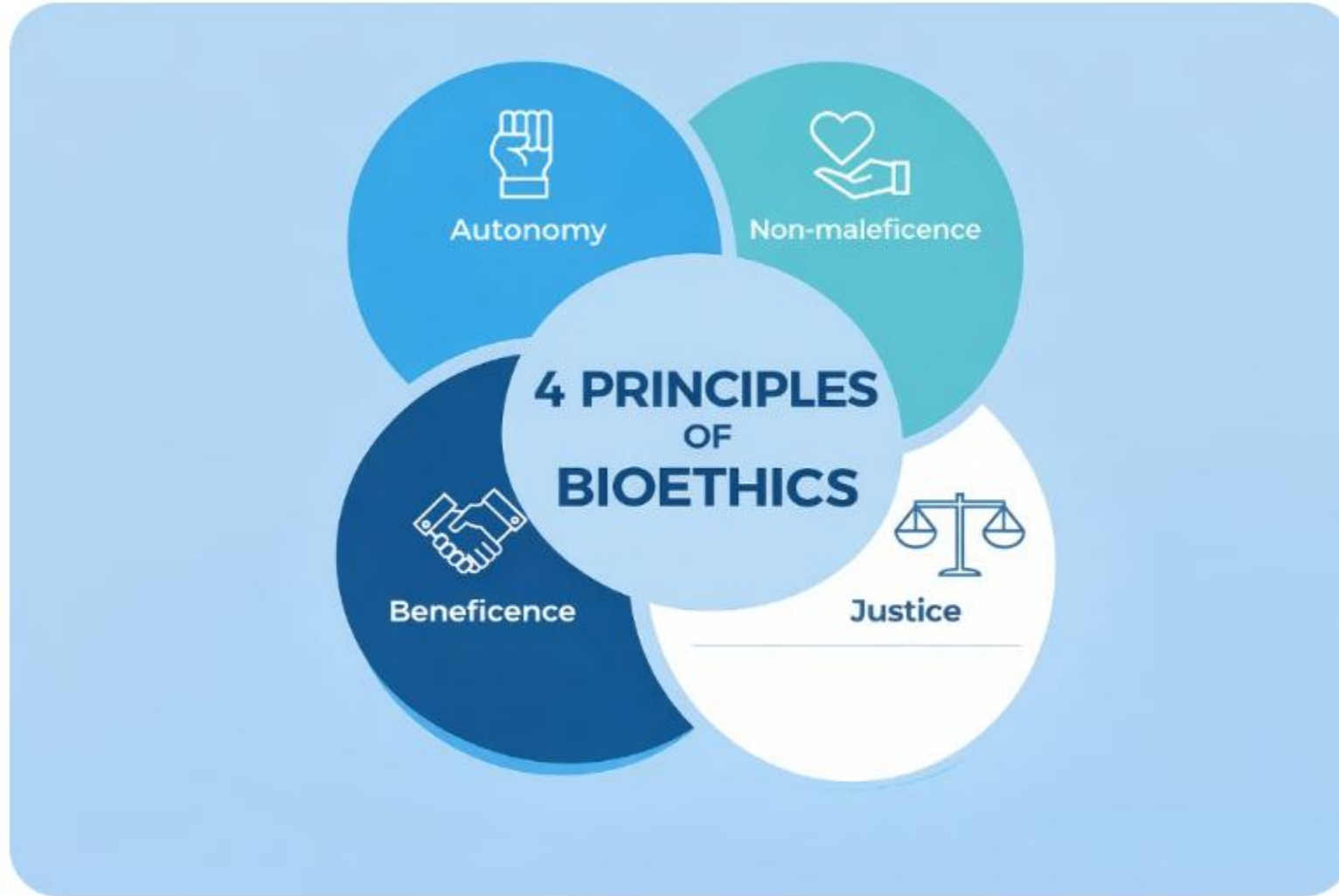
Background

Ethics is an inherent and inseparable part of pharmacy practice as the pharmacist has an ethical obligation

- (i) to benefit the patient,
- (ii) to avoid or minimise harm, and
- (iii) to respect the values and preferences of the patient.¹

1. Varkey B. Principles of Clinical Ethics and Their Application to Practice. Med Princ Pract. 2021;30(1):17-28. doi: 10.1159/000509119.

Background



Aims

- To develop ethical scenarios in the MyDispense platform that encompass one or more of the ethical principles
- To incorporate the MyDispense exercises into the established bioethical topic within a 2nd-year pharmacy unit

Method

6 Bioethical hospital and community pharmacy case were designed and built into the MyDispense platform



2nd year pharmacy students attempted any of the 6 cases as part of the PHR2011 (Professional Practice) unit, ethics in pharmacy workshop



For each case students were prompted to select which of the 4 bioethical principles apply and provide reasoning for their choice

You are the duty pharmacist in a busy hospital.
Consider the ethical implications of the tasks in this exercise.

Which bioethics principles did you identify in this case?
If you put a 'Y' against a principle, give a brief reason for your decision:

EHR notes feedback

The bioethical principles in this case are:

Bioethics principle	Y/N	Reason
Autonomy		
Beneficence	Y	Considering the well-being of the patient and prescribing an antibiotic that is safe and appropriate.
Justice		
Non-Maleficence	Y	We have an obligation to do no harm to patients and supplying the Amoxicillin would cause patient harm.

Results

- 285 students attended the workshop (May 2025) and were instructed to complete the MyDispense cases as part of their learning for the ethics in pharmacy topic.

	Autonomy	Beneficence	Non-maleficence	Justice
Case 1 (n=43)	7% (3)	72% (31)	91% (39)	-
Case 2 (n=28)	93% (26)	21% (6)	11% (3)	11% (3)
Case 3 (n=25)	28% (7)	76% (19)	88% (22)	-
Case 4 (n=12)	42% (5)	67% (8)	17% (2)	83% (10)
Case 5 (n=8)	87% (7)	62% (5)	37% (3)	-
Case 6 (n=9)	22% (2)	55% (5)	89% (8)	-

Discussion/Conclusion

- Six bioethical cases were incorporated into the MyDispense platform for 2nd year pharmacy students.
- Students were able to apply their knowledge of the bioethical framework to select the most appropriate principles based on the scenario.
- This is the **first time** MyDispense has been used for this purpose.

Moving forward

- In 2026 another 2 new bioethical cases were added to MyDispense for 2nd year students
- Discovery, applied session and workshop had an increased emphasis on the 4 bioethical principles
- Ethics in Pharmacy Mystery Shop Study (Aug 2026)

Mobilizing and Advancing Pharmacy Leadership in Emergencies (MAPLE) Collective: A Tabletop Simulation Workshop

Dr. Kaitlyn Watson

Kaitlyn.Watson@ualberta.ca

Assistant. Professor

Faculty of Pharmacy & Pharmaceutical Sciences
College of Health Sciences, University of Alberta



BREAKING

NEWS



Mobilizing and Advancing Pharmacy Leadership in Emergencies (MAPLE) Collective: A Tabletop Simulation Workshop

Dr. Kaitlyn Watson

Kaitlyn.Watson@ualberta.ca

Assistant. Professor

Faculty of Pharmacy & Pharmaceutical Sciences
College of Health Sciences, University of Alberta



Disclosures

Presenter's Name: Dr Kaitlyn Watson

- I have no current or past relationships with commercial entities
- I am the Founder and CEO of Disaster Pharmacy Solutions. We provide education and training to the pharmacy workforce on disasters and health emergencies.
- This program has received no financial or in-kind support from any commercial or other organization.

M.A.P.L.E. Collective

Mobilizing and Advancing Pharmacy Leadership in Emergencies



Dr. Kaitlyn Watson
University of Alberta



Colleen Brady
University of British Columbia



Dr. Allison Slater
University of Waterloo



Dr. Mikaela Thorne
Memorial University of
Newfoundland



SCHOOL OF PHARMACY

Guiding Principles:

- Relevant across Canadian provinces and territories
- Realism of a community pharmacy
- Hands-on experience applying skills in an evolving, real-world context

<i>Third year PharmD students</i>	2025-26	2026-27
	119	120
	40	40
	130	139
	n/a	224
Total	289	523

“Cognitive load is in the circumstance.”



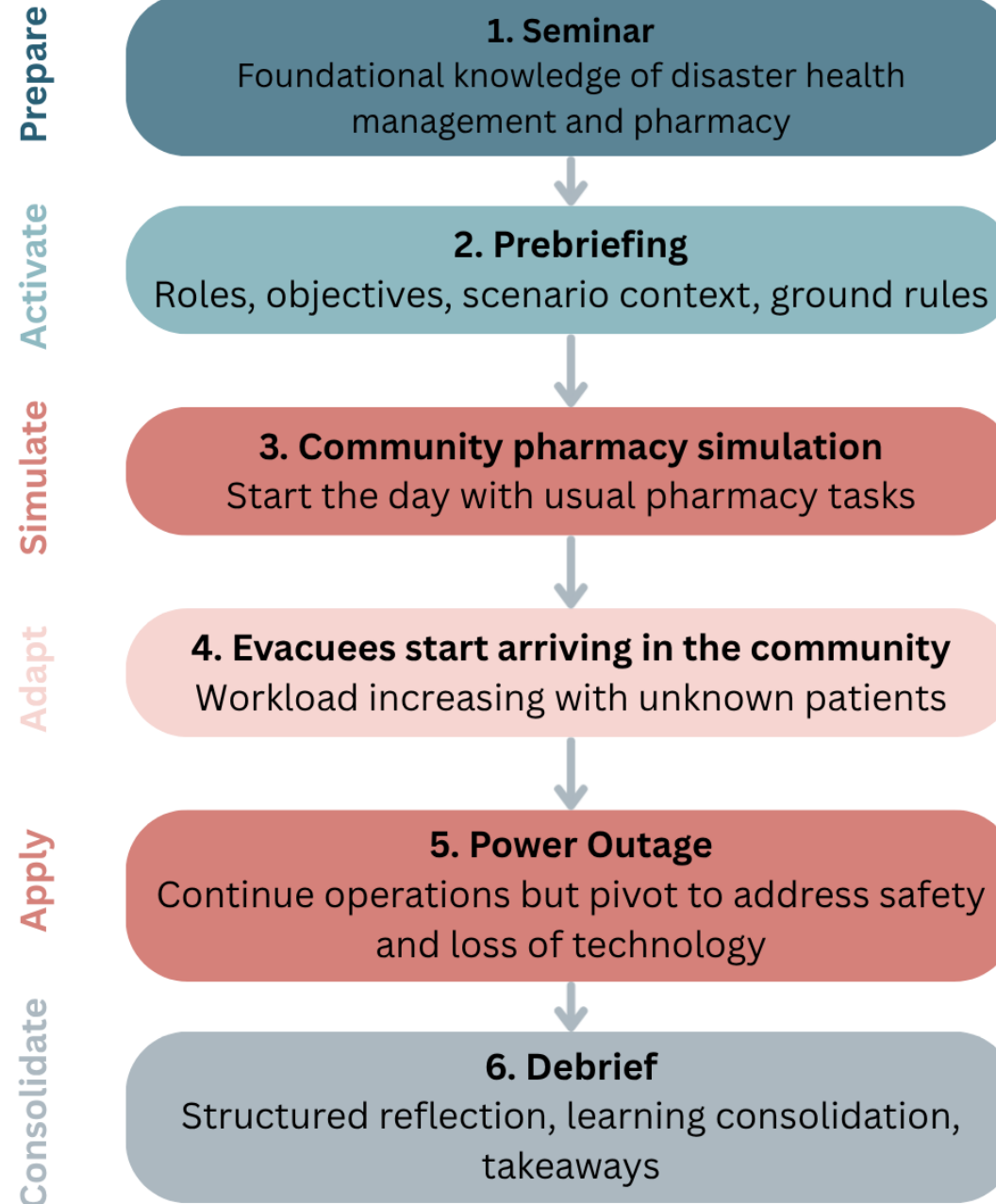
Objectives

- 1 Practice the roles and responsibilities of a pharmacist in emergency response.
- 2 Demonstrate prioritization and workflow management of patient care activities.
- 3 Communicate effectively within their pharmacy team.
- 4 Apply laws and regulations pertaining to community pharmacy operation and legal requirements for documentation when providing patient care.
- 5 Participate in a debrief and reflection of your experience.

The goal of this exercise is not to test your knowledge but to facilitate a collaborative learning environment where we can explore the complexities of a health emergency and a community's response.



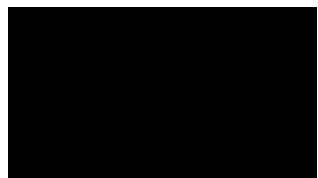
Outline

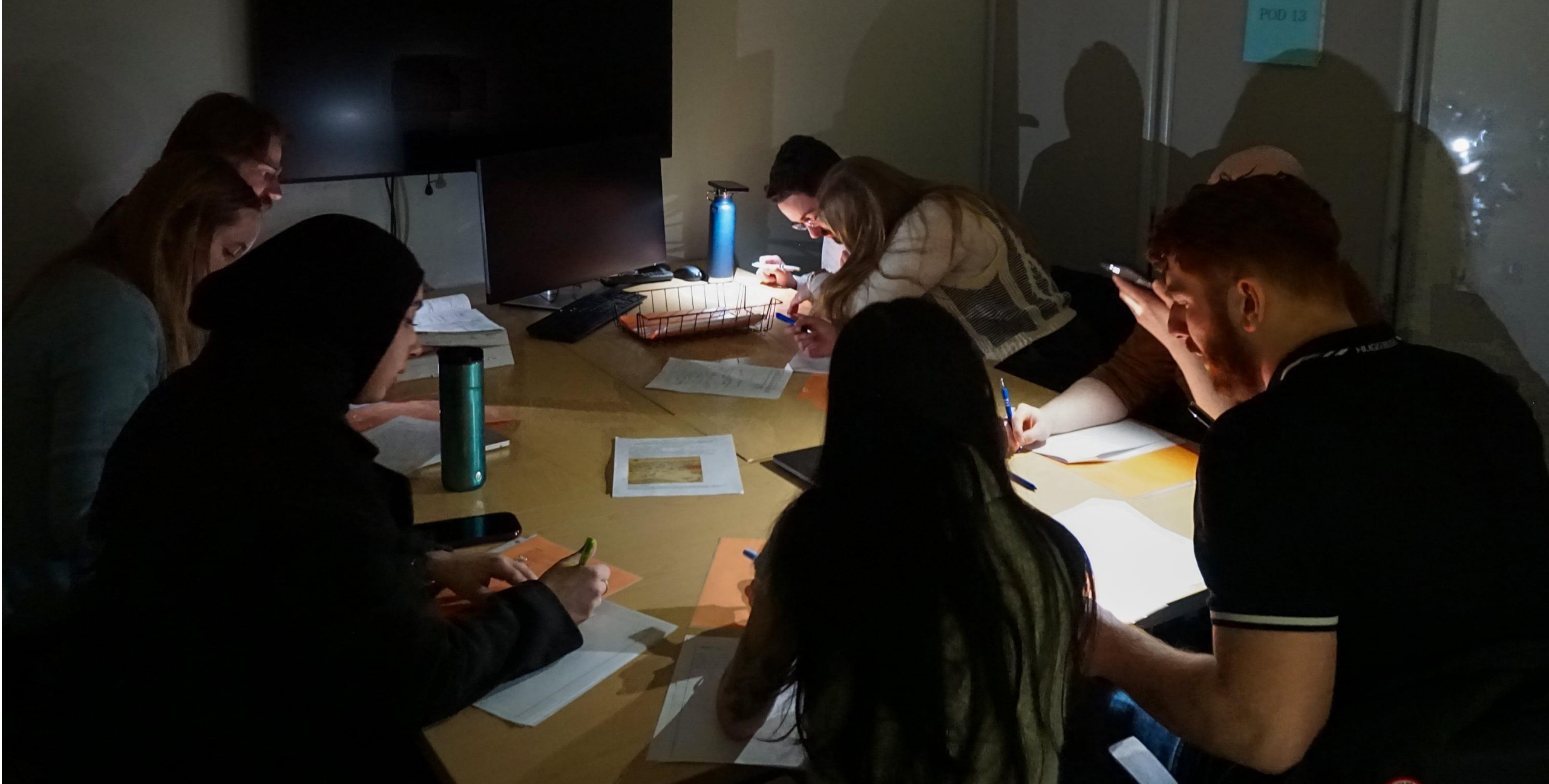




(From left) Pharmacy students Youssef Elezzabi, Jenna Humenny, Nathaniel Ferneti and Kareem Elsafadi take part in a disaster scenario aimed at readying Canadian pharmacists to support communities through emergencies like wildfires. (Photo: Tarwinder Rai / Faculty of Pharmacy and Pharmaceutical Sciences), <https://www.ualberta.ca/en/folio/2026/04/pharmacy-students-prepare-for-the-worst-with-disaster-scenario.html>

BREAKING NEWS





Nathaniel Ferneti's team carries on even after the power cut out. (Photo: Supplied).
<https://www.ualberta.ca/en/folio/2026/04/pharmacy-students-prepare-for-the-worst-with-disaster-scenario.html>

**Your pharmacy is now closed - congratulations on a
job well done!**



Debrief – UofA cohort

Describe (in one word) how it felt to be part of today's scenario? be part of today's scenario?



*“turning the
lights off
during the
power outage!
felt realistic!”*

*“it was quite
realistic and
immersive, which
was very engaging”*

Debrief – UofA cohort

What emotions did the simulation bring up for you?



Debrief – UofA cohort

Reflecting back on the disaster scenario, what has stayed with you about the experience?

I was able to see what type of person I am in an emergency

The need for perseverance even when it gets overwhelming!

The adrenaline/stress that comes with unknown situations which makes it difficult to focus on the task at hand

We don't use textbooks enough during our skills labs - trying to figure it out during an emergency situation was tough!

What really stood out was how dependent we are on technology. When the power went out, we didn't know how to navigate a physical copy of the CPS.

Debrief – UofA cohort

How can what you've learnt through the simulation be applied to your future careers as healthcare professionals?

being prepared for the unexpected!

The need for perseverance even when it gets overwhelming!

Pharmacies will remain as a likely first point of contact for individuals with healthcare in an emergency

I can be sure to be familiar with the disaster plans and power outage measures of future pharmacies I work at.

Being prepared for the unexpected is a skill we should all have and this simulation really taught me its importance and I will take this with me into my career.

Media Interest

“You never know who’s going to walk through the door”

The new disaster simulation exercise was developed by U of A assistant professor [Kaitlyn Watson](#) and three colleagues at universities across the country. They formed a collective called Mobilizing and Advancing Pharmacy Leadership in Emergencies, or MAPLE for short, in response to the increasing risk of extreme weather events across Canada due to climate change.



WEDNESDAY, FEBRUARY 4, 2026

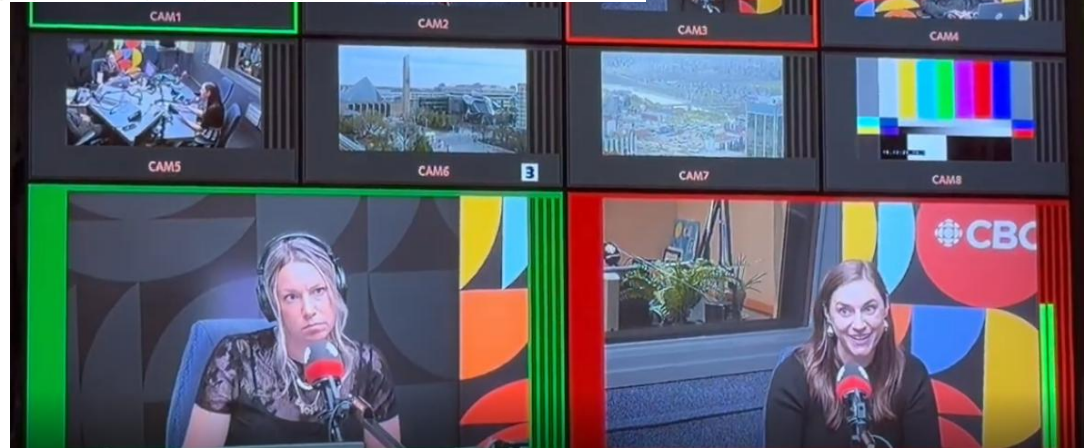
Preparing pharmacy students for emergencies

First-of-its-kind interactive disaster preparedness workshop builds resilience in future pharmacists

With the increase of wildfires, floods, droughts, heatwaves and severe thunderstorms, the world is experiencing a rampant change in climate that brings more frequent and devastating extreme weather events. In 2025, the Earth experienced one of the hottest years on record, resulting in loss of life and billions of dollars in damage.

In response to the growing risk of extreme weather, and in recognition of personal experiences shared by pharmacists who have responded to emergencies in clinical practice, the need emerged to better prepare future pharmacists for unprecedented situations.

To answer the call, the Mobilizing and Advancing Pharmacy Leadership in Emergencies (MAPLE) Collective was formed. This collaboration spans four Canadian pharmacy schools: Memorial University, the University of Alberta, the University of British Columbia and the University of Waterloo.



“

They literally left with what they're wearing in some cases and they don't have access to medications, their insurance information or their money. You're experiencing them on possibly the worst day of their life.”

– Kaitlyn Watson

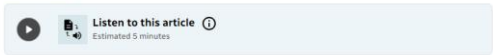


Kitchener-Waterloo

Interactive workshop prepares future pharmacists to respond to emergency events

Workshop can be applied to schools across the country and scenarios outside of natural disasters

Carmen Groleau - CBC News - Posted: Feb 09, 2026 5:00 AM MST | Last Updated: February 9



Questions?

Dr. Kaitlyn Watson

Kaitlyn.Watson@ualberta.ca

Assistant. Professor

Faculty of Pharmacy & Pharmaceutical Sciences
College of Health Sciences, University of Alberta

Founder & CEO

Disaster Pharmacy Solutions



From Insight to Impact: **Mapping longitudinal student assessment performance that promotes future ready graduates**



Jackie Zeeman, PharmD

Associate Professor and Associate Dean

UNC Eshelman School of Pharmacy

jackie_zeeman@unc.edu



Transforming Curriculum for Future-Ready Graduates



- Pharmacy practice is transforming rapidly
 - Interprofessional, team-based care
 - Integration of knowledge, skills, & behaviors
 - Artificial intelligence and automation
- Traditional assessment monitoring lacks comprehensive longitudinal insights
 - Final course grades (macro)
 - In-course student learning assessments (micro)

Developing Practice-Ready Graduates



PharmD program mission to create
exemplary practitioners, leaders and innovators, and lifelong learners.

Educational Outcomes designed to develop Future-Ready Practitioners

Knowledge Acquisition

Exams and assessments

Clinical and Transferrable Skills

Skills assessment

Pharmacy Application

EPA entrustment

The Academic Journey



	Fall academic term	Spring academic term
Year 1	Didactic course 101 Didactic course 102 Didactic course 103 Etc.	Didactic course 110 Didactic course 111 Didactic course 112 Etc.
Year 2	Didactic course 201 Didactic course 202 Didactic course 203 Etc.	Didactic course 210 Didactic course 211 Experiential course 290 Etc.
Year 3	Didactic course 301 Didactic course 302 Experiential course 390 Etc.	Didactic course 310 Didactic course 311 Didactic course 312 Etc.
Year 4	Didactic course 401 Experiential 491 Experiential 492 Etc.	Didactic course 401 Experiential 491 Experiential 492 Etc.

>40 required courses

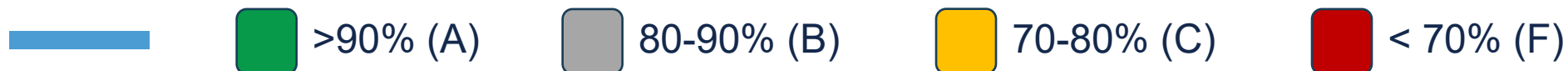
>800 students

>97,000 data points

Longitudinal Didactic Course Performance



Longitudinal Didactic Course Performance



Fall 2025														Spring 2026																
PHCY 500: Pharmacy Bridging Cour..					PHCY 502: Pathophy..			PHCY 503: Molecula..			PHCY 504: Ev..		PHCY..	PHCY..	PHCY 510: Foundati..			PHCY 511: Foundations of P..				PHCY 512: Pharmaceutics a..				PHCY 519: S..		PHCY 529: Pharmac.		
500 Biochem Post	500 Biostat Post	500 OrgChem Post	500 Physiology Post	500 PharmacyToolkit Post	502 Midterm 1	502 Midterm 2	502 Final Exam	503 Midterm 1	503 Midterm 2	503 Final Exam	504 Exam 2	504 Exam 3	508 Final Exam	508 Final Exam	510 Exam 1	510 Exam 2	510 Exam 3	511 Midterm 1 - Form A & B	511 Midterm 2 - Form A & B	511 PreFinal - Form A, A Mak..	511 Final Exam - Form A & B	512 Exam 1	512 Exam 2	512 Exam 3	512 Final Exam	519 Exam 1	519 Final Exam	529 Exam 1	529 Exam 2	529 Exam 3
96.3	96.5	88.0	100.0	100.0	97.2	96.3	98.1	95.5	86.6	92.1	84.6	95.5	85.0		97.4	89.7	93.6	91.7	84.6	97.0	87.2	100.0	92.0	97.1	92.8	95.7	90.0	91.9	93.9	87.2
100.0	89.7	92.0	97.9	100.0	100.0	100.0	96.2	100.0	89.7	94.4	84.6	104.5	90.0		97.4	100.0	97.9	100.0	100.0	100.0	97.9	97.1	96.0	97.1	97.1	95.7	98.0	96.8	97.0	97.4
96.3	93.1	84.0	93.6	94.4	100.0	92.6	98.1	88.8	86.6	80.2	96.2	104.5	83.3		102.6	102.6	89.4	91.7	96.2	97.0	91.5	94.3	96.0	85.3	92.8	95.7	100.0	103.2	97.0	100.0
88.9	96.5	88.0	100.0	100.0	94.4	85.2	100.0	100.0	91.5	92.9	88.5	95.5	86.7		100.0	97.4	80.8	91.7	96.2	87.9	89.4	91.4	88.0	88.2	98.5	100.0	90.0	95.2	87.9	92.3
92.6	100.0	92.0	100.0	100.0	94.4	94.4	100.0	97.8	90.1	94.4	92.3	104.5	93.3		97.4	97.4	95.7	87.5	100.0	97.0	89.4	94.3	100.0	91.2	92.8	91.3	94.0	87.1	100.0	92.3
100.0	100.0	100.0	97.9	100.0	100.0	98.2	100.0	102.2	96.7	99.2	96.2	100.0	100.0		107.7	107.7	102.1	100.0	100.0	100.0	100.0	99.3	100.0	100.0	97.1	95.7	98.0	93.5	100.0	107.7

Longitudinal Didactic Course Performance



Fall 2025														Spring 2026																
PHCY 500: Pharmacy Bridging Cour..					PHCY 502: Pathophy..			PHCY 503: Molecula..			PHCY 504: Ev..		PHCY..	PHCY..	PHCY 510: Foundati..			PHCY 511: Foundations of P..				PHCY 512: Pharmaceutics a..				PHCY 519: S..		PHCY 529: Pharmac..		
500 Biochem Post	500 Biostat Post	500 OrgChem Post	500 Physiology Post	500 Pharmacy Toolkit Post	502 Midterm 1	502 Midterm 2	502 Final Exam	503 Midterm 1	503 Midterm 2	503 Final Exam	504 Exam 2	504 Exam 3	508 Final Exam	508 Final Exam	510 Exam 1	510 Exam 2	510 Exam 3	511 Midterm 1 - Form A & B	511 Midterm 2 - Form A & B	511 PreFinal - Form A, A Mak..	511 Final Exam - Form A & B	512 Exam 1	512 Exam 2	512 Exam 3	512 Final Exam	519 Exam 1	519 Final Exam	529 Exam 1	529 Exam 2	529 Exam 3
96.3	96.5	88.0	100.0	100.0	97.2	96.3	98.1	95.5	86.6	92.1	84.6	95.5	85.0		97.4	89.7	93.6	91.7	84.6	97.0	87.2	100.0	92.0	97.1	92.8	95.7	90.0	91.9	93.9	87.2
100.0	89.7	92.0	97.9	100.0	100.0	100.0	96.2	100.0	89.7	94.4	84.6	104.5	90.0		97.4	100.0	97.9	100.0	100.0	100.0	97.9	97.1	96.0	97.1	97.1	95.7	98.0	96.8	97.0	97.4
96.3	93.1	84.0	93.6	94.4	100.0	92.6	98.1	88.8	86.6	80.2	96.2	104.5	83.3		102.6	102.6	89.4	91.7	96.2	97.0	91.5	94.3	96.0	85.3	92.8	95.7	100.0	103.2	97.0	100.0
88.9	96.5	88.0	100.0	100.0	94.4	85.2	100.0	100.0	91.5	92.9	88.5	95.5	86.7		100.0	97.4	80.8	91.7	96.2	87.9	89.4	91.4	88.0	88.2	98.5	100.0	90.0	95.2	87.9	92.3
92.6	100.0	92.0	100.0	100.0	94.4	94.4	100.0	97.8	90.1	94.4	92.3	104.5	93.3		97.4	97.4	95.7	87.5	100.0	97.0	89.4	94.3	100.0	91.2	92.8	91.3	94.0	87.1	100.0	92.3
100.0	100.0	100.0	97.9	100.0	100.0	98.2	100.0	102.2	96.7	99.2	96.2	100.0	100.0		107.7	107.7	102.1	100.0	100.0	100.0	100.0	99.3	100.0	100.0	97.1	95.7	98.0	93.5	100.0	107.7
96.3	79.3	100.0	95.7	100.0	94.4	94.4	96.2	100.0	94.5	95.2	88.5	90.9	76.7		102.6	102.6	87.2	87.5	96.2	84.8	83.0	100.0	96.0	94.1	94.2	87.0	80.0	90.3	100.0	94.9
88.9	86.2	92.0	93.6	94.4	97.2	90.7	96.2	92.1	80.9	88.9	65.4	95.5	80.0		89.7	97.4	87.2	83.3	96.2	93.9	95.7	97.1	92.0	82.3	91.3	89.1	84.0	79.0	90.9	89.7
88.9	86.2	88.0	93.6	100.0	88.9	85.2	92.3	80.9	68.2	78.6	84.6	90.9	80.0		87.2	89.7	89.4	75.0	96.2	97.0	89.4	82.9	100.0	94.1	92.8	73.9	86.0	96.8	87.9	82.0
92.6	89.7	88.0	70.2	94.4	86.1	74.1	90.4	84.3	80.5	67.5	96.2	95.5	96.7		79.5	100.0	93.6	100.0	100.0	100.0	97.9	88.6	100.0	97.1	97.1	102.2	96.0	83.9	90.9	82.0
88.9	100.0	80.0	85.1	100.0	94.4	96.3	94.2	95.5	94.1	93.7	65.4	100.0	83.3		100.0	89.7	76.6	75.0	96.2	90.9	85.1	94.3	96.0	79.4	89.9	84.8	88.0	82.3	93.9	87.2
92.6	79.3	88.0	87.2	100.0	97.2	96.3	90.4	86.5	87.5	85.7	84.6	72.7	83.3		84.6	79.5	87.2	87.5	88.5	100.0	83.0	94.3	88.0	79.4	82.6	76.1	86.0	67.7	78.8	97.4
85.2	69.0	96.0	91.5	72.2	91.7	88.9	94.2	97.8	90.1	90.5	76.9	86.4	100.0		87.2	87.2	80.8	91.7	96.2	84.8	72.3	91.4	84.0	76.5	76.8	82.6	82.0	93.5	93.9	87.2
88.9	75.9	92.0	87.2	100.0	97.2	94.4	96.2	88.8	81.1	88.9	65.4	81.8	86.7		84.6	107.7	93.6	87.5	100.0	97.0	95.7	94.3	96.0	91.2	88.4	87.0	96.0	87.1	97.0	94.9
77.8	82.8	56.0	95.7	94.4	94.4	92.6	94.2	89.9	78.7	84.1	80.8	90.9	76.7		94.9	89.7	89.4	75.0	92.3	90.9	83.0	91.4	88.0	79.4	84.1	89.1	90.0	85.5	84.8	84.6

Longitudinal Didactic Course Performance



Fall 2025															Spring 2026															
PHCY 500: Pharmacy Bridging Course					PHCY 502: Pathophysiology			PHCY 503: Molecular Biology			PHCY 504: Evaluation		PHCY 508	PHCY 510: Foundations of Pharmacy	PHCY 511: Foundations of Pharmacology				PHCY 512: Pharmaceutics and Biopharmaceutics				PHCY 519: Statistics		PHCY 529: Pharmacokinetics					
500 Biochem Post	500 Biostat Post	500 OrgChem Post	500 Physiology Post	500 Pharmacy Toolkit Post	502 Midterm 1	502 Midterm 2	502 Final Exam	503 Midterm 1	503 Midterm 2	503 Final Exam	504 Exam 2	504 Exam 3	508 Final Exam	508 Final Exam	510 Exam 1	510 Exam 2	510 Exam 3	511 Midterm 1 - Form A & B	511 Midterm 2 - Form A & B	511 PreFinal - Form A, A Mak.	511 Final Exam - Form A & B	512 Exam 1	512 Exam 2	512 Exam 3	512 Final Exam	519 Exam 1	519 Final Exam	529 Exam 1	529 Exam 2	529 Exam 3
96.3	96.5	88.0	100.0	100.0	97.2	96.3	98.1	95.5	86.6	92.1	84.6	95.5	85.0		97.4	89.7	93.6	91.7	84.6	97.0	87.2	100.0	92.0	97.1	92.8	95.7	90.0	91.9	93.9	87.2
100.0	89.7	92.0	97.9	100.0	100.0	100.0	96.2	100.0	89.7	94.4	84.6	104.5	90.0		97.4	100.0	97.9	100.0	100.0	100.0	97.9	97.1	96.0	97.1	97.1	95.7	98.0	96.8	97.0	97.4
96.3	93.1	84.0	93.6	94.4	100.0	92.6	98.1	88.8	86.6	80.2	96.2	104.5	83.3		102.6	102.6	89.4	91.7	96.2	97.0	91.5	94.3	96.0	85.3	92.8	95.7	100.0	103.2	97.0	100.0
88.9	96.5	88.0	100.0	100.0	94.4	85.2	100.0	100.0	91.5	92.9	88.5	95.5	86.7		100.0	97.4	80.8	91.7	96.2	87.9	89.4	91.4	88.0	88.2	98.5	100.0	90.0	95.2	87.9	92.3
92.6	100.0	92.0	100.0	100.0	94.4	94.4	100.0	97.8	90.1	94.4	92.3	104.5	93.3		97.4	97.4	95.7	87.5	100.0	97.0	89.4	94.3	100.0	91.2	92.8	91.3	94.0	87.1	100.0	92.3
100.0	100.0	100.0	97.9	100.0	100.0	98.2	100.0	102.2	96.7	99.2	96.2	100.0	100.0		107.7	107.7	102.1	100.0	100.0	100.0	100.0	99.3	100.0	100.0	97.1	95.7	98.0	93.5	100.0	107.7
96.3	79.3	100.0	95.7	100.0	94.4	94.4	96.2	100.0	94.5	95.2	88.5	90.9	76.7		102.6	102.6	87.2	87.5	96.2	84.8	83.0	100.0	96.0	94.1	94.2	87.0	80.0	90.3	100.0	94.9
88.9	86.2	92.0	93.6	94.4	97.2	90.7	96.2	92.1	80.9	88.9	65.4	95.5	80.0		89.7	97.4	87.2	83.3	96.2	93.9	95.7	97.1	92.0	82.3	91.3	89.1	84.0	79.0	90.9	89.7
88.9	86.2	88.0	93.6	100.0	88.9	85.2	92.3	80.9	68.2	78.6	84.6	90.9	80.0		87.2	89.7	89.4	75.0	96.2	97.0	89.4	82.9	100.0	94.1	92.8	73.9	86.0	96.8	87.9	82.0
92.6	89.7	88.0	70.2	94.4	86.1	74.1	90.4	84.3	80.5	67.5	96.2	95.5	96.7		79.5	100.0	93.6	100.0	100.0	100.0	97.9	88.6	100.0	97.1	97.1	102.2	96.0	83.9	90.9	82.0
88.9	100.0	80.0	85.1	100.0	94.4	96.3	94.2	95.5	94.1	93.7	65.4	100.0	83.3		100.0	89.7	76.6	75.0	96.2	90.9	85.1	94.3	96.0	79.4	89.9	84.8	88.0	82.3	93.9	87.2
92.6	79.3	88.0	87.2	100.0	97.2	96.3	90.4	86.5	87.5	85.7	84.6	72.7	83.3		84.6	79.5	87.2	87.5	88.5	100.0	83.0	94.3	88.0	79.4	82.6	76.1	86.0	67.7	78.8	97.4
85.2	69.0	96.0	91.5	72.2	91.7	88.9	94.2	97.8	90.1	90.5	76.9	86.4	100.0		87.2	87.2	80.8	91.7	96.2	84.8	72.3	91.4	84.0	76.5	76.8	82.6	82.0	93.5	93.9	87.2
88.9	75.9	92.0	87.2	100.0	97.2	94.4	96.2	88.8	81.1	88.9	65.4	81.8	86.7		84.6	107.7	93.6	87.5	100.0	97.0	95.7	94.3	96.0	91.2	88.4	87.0	96.0	87.1	97.0	94.9
77.8	82.8	56.0	95.7	94.4	94.4	92.6	94.2	89.9	78.7	84.1	80.8	90.9	76.7		94.9	89.7	89.4	75.0	92.3	90.9	83.0	91.4	88.0	79.4	84.1	89.1	90.0	85.5	84.8	84.6
63.0	65.5	24.0	78.7	83.3	94.4	83.3	86.5	84.3	74.8	67.5	76.9	72.7	43.3		66.7	76.9	70.2	75.0	88.5	87.9	76.6	91.4	100.0	82.3	85.5	82.6	70.0	85.5	75.8	71.8
70.4	65.5	76.0	76.6	77.8	86.1	81.5	80.8	71.9	71.7	63.5	76.9	54.5	80.0		61.5	51.3	72.3	75.0	84.6	87.9	87.2	75.0	96.0	85.3	81.2	58.7	74.0	77.4	78.8	74.4
88.9	79.3	56.0	76.6	88.9	80.6	85.2		82.0			80.8		33.3		66.7	59.0	57.5	50.0	76.9	72.7	74.5	88.6	84.0	76.5	72.5	80.4	82.0	77.4	84.8	74.4

Didactic Curricular Insights: Assessments + Grades



Fall 2025 PHCY 611: Applied Clinical Pharmacology				PHCY 630: Pharmacotherapy: Applied			
611 Exam 1	611 Exam 2	611 Final Exam	Grades	630 Exam 1	630 Exam 2	630 Exam 3	Grades
100.0	97.5	89.5	A	88.6	100.0	100.0	A
76.2	87.5	92.1	B	90.9	87.5	88.2	A
85.7	77.5	79.0	B	90.9	84.7	83.1	B
92.9	75.0	84.2	B	100.0	87.5	86.2	A
92.9	105.0	92.1	A	95.5	100.0	90.0	A
81.0	85.0	73.7	B	89.8	83.3	86.4	B
100.0	105.0	100.0	A	102.3	102.8	103.1	A
85.7	82.5	71.0	B	88.6	84.7	93.3	A
85.7	70.0	84.2	B	84.1	94.4	90.8	A

Didactic Curricular Insights: Assessments + Grades



PHCY 510: Foundations of Clinical Pharmacology				PHCY 511: Foundations of Pharmacokinetics					Spring 2024				PHCY 519: Self-Care and Non-Prescription Drugs				PHCY 529: Pharmacotherapy: Foundations			
510 Exam 1	510 Exam 2	510 Exam 3		511 Step 1	511 Step 2	511 Step 3	511 Final Exam	Grades	512 Exam 2	512 Final Exam	Grades		519 Exam 1	519 Exam 2	519 Final Exam	Grades	529 Exam 1	529 Exam 2	529 Exam 3	Grades
80.5	91.3	82.0		50.0	54.5	61.0	93.0	A	73.1	79.1	C		81.5	88.2	88.5	A	87.1	73.5	76.1	B
65.8	82.6	76.0		65.0	77.3	65.8	97.7	A	73.1	83.6	B		90.5	98.0	86.0	A	80.7	88.2	82.6	B
73.2	93.5	89.0		62.5	81.8	82.9	90.7	A	93.6	66.8	C		87.0	91.2	85.0	A	80.7	91.2	89.1	A
65.8	69.6	70.0		80.0	72.7	78.0	86.0	A	84.1	68.5	B		72.0	75.0	82.5	B	80.7	70.6	82.6	B
85.4	73.9	71.0		80.0	68.2	85.4	81.4	B	78.4	83.6	C		73.5	69.8	71.0	B	77.4	79.4	84.8	B

Experiential Entrustable Professional Activities (EPAs)



UNC	Entrustable Professional Activity (EPA) Statement	IE1 PHCY 591	IE1 PHCY 691	IE2/IE3 PHCY 591	IE2/IE3 PHCY 691	IE2/IE3 PHCY 791	AdvIE PHCY 891	AdvIE PHCY 892	AdvIE PHCY 886-887, 893 –897
		Community	Health System	Community	Health System	Direct Patient Care	Community	Health System	Am Care: PHCY 893 Gen Med: PHCY 894 Clinical (3): PHCY 895/896/897 Patient Care: PHCY 886/887
EPA 1	Utilize an evidence-based approach to advance patient care	Dependent	Dependent	Assisted	Assisted	Assisted	N/A	N/A	Supervised
EPA 2	Collect pertinent medication and medical information	Assisted	Assisted	Supervised	Supervised	Supervised	Supervised	N/A	Supervised
EPA 3	Perform a comprehensive medication history interview	Assisted	Assisted	Supervised	Supervised	Supervised	Supervised	N/A	Supervised
EPA 4	Prioritize and develop an assessment of patient's medication therapy problems	Dependent	Dependent	Assisted	Assisted	Assisted	Supervised	N/A	Supervised
EPA 5	Develop a patient-centered care plan to optimize medication use	Dependent	Dependent	Assisted	Assisted	Assisted	Supervised	N/A	Supervised
EPA 6	Implement a patient-centered care plan in collaboration with the care team	Dependent	Dependent	Dependent	Dependent	Assisted	Assisted	N/A	Supervised
EPA 7	Provide medication education to patients and/or caregivers	Dependent	Dependent	Assisted	Assisted	Assisted	Supervised	N/A	Supervised
EPA 8	Monitor response to medication therapy	N/A	Dependent	N/A	Assisted	Assisted	N/A	N/A	Supervised
EPA 9	Document patient encounters and services provided	Dependent	Dependent	Dependent	Dependent	Assisted	Assisted	N/A	Supervised
EPA 10	Collaborate as a member of an interprofessional team	Dependent	Dependent	Dependent	Assisted	Assisted	Dependent	Supervised	Supervised
EPA 11	Provide an oral presentation of a clinical encounter to a pharmacist or other health care professional	Dependent	Dependent	Assisted	Assisted	Assisted	Supervised	N/A	Supervised
EPA 12	Prepare medications for dispensing and/or distribution	Supervised	Supervised	Supervised	Supervised	N/A	Supervised	N/A	N/A
EPA 13	Oversee pharmacy operations for an assigned work shift	Dependent	Dependent	Dependent	Dependent	N/A	Supervised	Supervised	N/A
EPA 14	Administer immunizations and conduct point-of-care assessments	Assisted	N/A	Assisted	N/A	N/A	Supervised	N/A	NA
EPA 15	Contribute to a culture of safety and quality improvement	N/A	N/A	N/A	N/A	N/A	Assisted	Assisted	N/A

EPA = Entrustable Professional Activity; IE = Immersion Experience, AdvIE = Advanced Immersion Experience; N/A = EPA not assessed on this experience

Longitudinal Experiential EPA Entrustment



Rated above
suggested
entrustment



Rated below
suggested
entrustment



Entrustment
not evaluated

PHCY891															PHCY893															PHCY894															PHCY895														
EPA 1	EPA 2	EPA 3	EPA 4	EPA 5	EPA 6	EPA 7	EPA 8	EPA 9	EPA 10	EPA 11	EPA 12	EPA 13	EPA 14	EPA 15	EPA 1	EPA 2	EPA 3	EPA 4	EPA 5	EPA 6	EPA 7	EPA 8	EPA 9	EPA 10	EPA 11	EPA 12	EPA 13	EPA 14	EPA 15	EPA 1	EPA 2	EPA 3	EPA 4	EPA 5	EPA 6	EPA 7	EPA 8	EPA 9	EPA 10	EPA 11	EPA 12	EPA 13	EPA 14	EPA 15															
I	I	I	I	S	I	I		I	I	I	I	I	I	I	S	S	S	S	S	S	A	A	S	S	S					S	S	I	S	S	S	I	S	S	S	S					A	S	S	S	S	A	S	S	S	S	S				
I	I	I	I	I	I	I		I	I	I	I	I	I	I	S	I	I	S	S	S	I	S	S	S	I					A	S	S	S	S	A	S	A	A	S	S					I	I	I	I	I	I	I	I	I	I	I				
S	S	S	S	S	A	S		D	D	S	S	S	S	A	S	S	I	S	S	S	S	S	S	S	S					I	I	S	I	I	I	S	I	S	I	I					S	S	S	S	S	S	S	S	S	S	S				
S	S	S	S	S	A	A		A	D	S	S	S	S	A	S	I	I	S	S	S	S	S	I	S	S					S	S	S	S	S	S	NA	S	NA	S	S					S	I	S	S	S	S	S	S	S	S	S				
S	S	S	S	S	A	S		A	D	S	S	S	S	A	S	S	S	S	A	A	S	S	S	S	S					A	S	I	S	A	A	S	S	S	S	S					S	S	S	S	S	I	S	I	S	S	S				
S	I	I	S	S	S	I		I	S	S	I	S	I	S	S	I	I	I	S	I	I	S	I	I	I					S	S	S	S	S	S	S	S	S	S	S	I					D	D	NA	A	A	A	D	NA	NA	D	D			
I	I	I	I	I	I	I		I	I	I	I	I	I	I	A	S	A	A	A	A	S	A	S	S	A					S	S	S	S	S	S	S	S	S	S	S					S	S	I	S	S	S	S	S	S	S	S				
I	I	S	S	NA	NA	I		S	NA	S	I	I	NA	I	A	S	S	S	A	A	S	A	S	S	S					S	S	S	I	S	I	NA	S	S	I	I					S	S	S	S	S	S	S	NA	S						
S	I	I	S	S	S	I		S	S	I	I	S	I	I	A	A	A	A	A	A	A	S	S	A	A					S	S	I	S	S	NA	S	I	S	I					I	I	I	I	I	I	I	I	I	I	I	I				
S	I	S	I	I	S	I		S	S	I	I	S	I	A	A	S	S	A	A	S	S	S	S	S	S					A	A	S	A	S	NA	S	A	S	S					A	S	NA	S	A	S	S	S	S	S	S					
I	I	I	I	I	I	I		I	I	I	I	I	I	I	S	S	S	S	S	S	S	S	S	S	S					S	S	S	S	S	S	S	S	S	S					S	I	S	S	S	NA	S	NA	S	S	S					
S	S	S	S	S	S	S		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	A	S	A					S	S	NA	I	S	S	S	S	I	S					S	S	S	S	S	S	S	S	S	S	S	S				
I	I	I	I	I	I	I		I	I	I	I	I	I	I	A	A	A	D	D	D	S	A	A	A	A					S	S	NA	I	S	S	NA	S	S	I					S	S	I	S	S	S	S	S	S	S	S	S				
S	I	I	S	S	S	I		S	S	I	S	S	I	I	S	I	I	I	I	I	I	S	I	I	I					S	I	I	S	S	S	S	S	S	I					D	A	S	D	D	D	NA	D	S	NA	D					
S	S	S	S	S	A	S		S	S	S	A	A	I	A	S	I	I	S	S	S	S	S	S	I					S	S	NA	S	S	S	A	S	S	S					A	A	S	A	A	A	S	A	A	A	S						

Key Insights



Longitudinal assessment of student learning progression

- Integrates micro-level (e.g., exams) and macro-level (e.g., grades) data
- Thresholds flag students performing above, at, or below expectations
- Monitors student-level performance AND course insights to enable proactive academic support and data-driven curricular quality improvement

Future Directions and Enhancements

- Integration of didactic and experiential assessments of student learning
- Addition of skills-based assessments

Acknowledgements



Office of Organizational Effectiveness, Planning, and Assessment (OE)



Chris Gosk
OE Director



Vishal Tiwari
OE Senior Data Analyst



References

- Alston GL, Battise DM, Neville MW. A 10-year study of the academic progress of students identified as low performers after their first semester of pharmacy school. American journal of pharmaceutical education. 2016;80(7):118.
- Daugherty KK, Ceballos-Coronel ML, Soja W. Sensitivity and specificity of course grades after exam failure used as an indicator for final course performance. Currents in Pharmacy Teaching and Learning. 2015;7(2):163-8.
- Robinson SE, Song JJ. Student academic performance system: quantitative approaches to evaluating and monitoring student progress. International Journal of Quantitative Research in Education. 2019;4(4):332-53.

From Insight to Impact: **Mapping longitudinal student assessment performance that promotes future ready graduates**



Jackie Zeeman, PharmD

Associate Professor and Associate Dean

UNC Eshelman School of Pharmacy

jackie_zeeman@unc.edu

