Lessons Learned Nudging Students with *my*UMBC Personal Posts

Scaling the right message to the right student at the right time

UMBC

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Outline

- CHEM 101 and 102 at UMBC
- Connecting with students
- Personal email project
- Spaced practice and student engagement
- Connecting with students through myUMBC
  - Motivation
  - Execution & workflow
  - Analysis & reflection
- New questions

CHEM 101 and 102 at UMBC

Gateway courses for many STEM majors and pre-professional degree seekers

Semester	CHEM 101	CHEM 102
Fall 2023	815	215
Spring 2024	283	556
Total Enrollment	1098	771

Hard to build personal connections with large class size

Connecting with Students

- When students feel a sense of belonging in the classroom, engagement and effort increase.
- This is a challenge when students feel like a face in the crowd.
- An instructor's behavior and "showing they care" are largely attributed to student attitude and engagement.

Questions:

1. Do students in CHEM 101 and 102 feel they are just a number?
2. How can we connect with students when we are unable to meet with them one-on-one?

Using E-mail to Foster the Faculty-Student Connections in a Large Introductory Course

Students learn more and have a better experience when they have a personal connection with the instructor.

- ★ Be transparent
- ★ Be yourself
- ★ Show compassion
- ★ Be available
- ★ Reach out to students

Ambition: Foster Personal Connection

Let students know that we care

Point out what they may realize but are not sure how to proceed

Stop them from making excuses for their grades

Offer help with learning strategies

<u>WHO?</u>

Students doing well – keep up the good work!

Students that could improve

Students in danger of not passing

Impact of Personalized Instructor Feedback on Student Support and Motivation

The personal emails I received from Dr. (instructor) after each exam regarding my performance:	**CHEM 101 Strongly Agree or Agree (N = 184)**	**CHEM 102 Strongly Agree or Agree (N = 400)**
helped me feel supported in the class.	93.5%	85.3%
increased my motivation to learn in this class.	88.0%	77.5%
helped me feel that the instructor cared about my performance in the class.	91.3%	90.0%
made me feel less anonymous in such a large class.	78.8%	72.3%
helped me improve my performance on one or more subsequent exams.	63.0%	56.8%

Online Learning & Student Engagement

- Engaging with and motivating students in an online large lecture course is a challenge.
- Personalized emails were used during online learning to maintain student engagement during a time where it was easy for students to disengage.
- In CHEM 102, spaced practice was assigned to demonstrate self regulation and increase awareness in their own learning strategies.
    - Personalized emails were frequently sent to all students surrounding tests and homework assignments with the goal of motivating students to keep going and keep them informed about their progress.

Could *my*UMBC personal posts be more effective than email, offer deeper insight, and lighten instructor burden?

Suggested Guidelines for *my*UMBC Personal Posts for Nudging

Target the message	**Use institutional data to refine recipients and nature of content.**
Get personal	**Address the recipient by name and sign the post.**
Keep it simple	**Embed direct deep links when it makes sense.**
State the call-to-action	**Give the reader a link to accomplish the task.**
Compel the recipient	**Develop a subject line that motivates the reader to open the post.**

Timing and Focus: Beginning of the semester

Establish a foundation for student engagement and understanding of the course requirements

- Overview of course format and expectations
- Encouragement to engage with course materials and participate actively
- Guidance on available resources

Class Day	Milestone
3	Missed first reading quiz in Blackboard
6	Missed first and second reading quiz in Blackboard
9	Not completing any homework assignments
9	Hasn’t participated in class
22	Did not attend or complete 3 Discussion assignments

Timing and Focus: After each formative assessment

Provide tailored feedback and support based on performance to foster motivation, provide support and encourage a growth mindset

- **Commendation**: recognize students who performed well
- **Encouragement**: motivate students to continue striving or aim higher
- **Support**: Provide direct access to campus resources (e.g., tutoring, counseling) for students wanting to improve

Each wave of messages could include up to 7 differently worded messages. For instance, Chem 101's 6th nudge included separate messages tailored for the following student conditions:

- Has an A average
- Has a high B exam average
- Has a high C exam average
- Has a low C exam average
- Has a D exam average
- Has an F exam average
- Has an F course average

Messaging Workflow

Instructors	Instructors	DoIT	DoIT
Establish criteria for each message Key milestones? Student engagement? Student performance?	**Write message text** Ensure that each message aligns with the criteria created in the first step, and that it is tailored to effectively communicate with the intended audience. Give actionable feedback.	**Code message for *my*UMBC notifications** DoIT receives the message category coding in the Blackboard gradebook from instructors, and integrates into the *my*UMBC system. The category coding is assigned to each student by instructors ahead of time.	**Schedule send messages** Once the messages are coded, DoIT sends them out as *my*UMBC notification and email. Messages are distributed to the specified audience according to timing and parameters set by instructors.

Sample Messages: Earned an A after Exam 2

"Congratulations! You earned a *[EXAM 2 GRADE]*% on exam 2 and have an A average on your exams so far. You are doing a great job of maintaining consistent A performance on exams! Take care in preparing for exams 3 and 4 which cover some of the most intense material and take a lot of time and practice to truly learn. Your estimated course grade is *[ESTIMATED GRADE]*%. If you haven't already and are interested in more learning strategies or checking to see if yours are effective, check out the Tutoring & Other help folder on Blackboard. Keep up the great work!

Dr. Bass and Dr. Carpenter"

Sample Messages: Not passing after Exam 2

"We are reaching out to you because you currently have an exam average that is *[EXAM AVERAGE]*% which is far below passing. Right now, you are on track to earn an F in the course and it will be impossible to pass if you do not drastically change your learning strategies and efforts. You must reflect on your poor performance and how you can improve your score. Your course grade is estimated to be *[ESTIMATED GRADE]*% based on your Exams 1 and 2 scores, Aktiv homework, reading Quizzes, in-class polling, and Discussion grades through October 16. There are many ways to get help for this course which are listed under "Tutoring & other help" on Blackboard. You should schedule an Academic Skills Meeting with the Academic Success Center, or a one-on-one consultation with CNMS Student Success Coach/Advisor Emma Barnaby. We believe in you!

Dr. Bass and Dr. Carpenter”

Analysis: Introduction & Objectives

- Significant increase in DFW rates in Chem 101 & 102 since the pandemic
- Implementation of intervention strategies (spaced practice and nudging)
- Aim: Assess impact of interventions amidst rising DFW trends

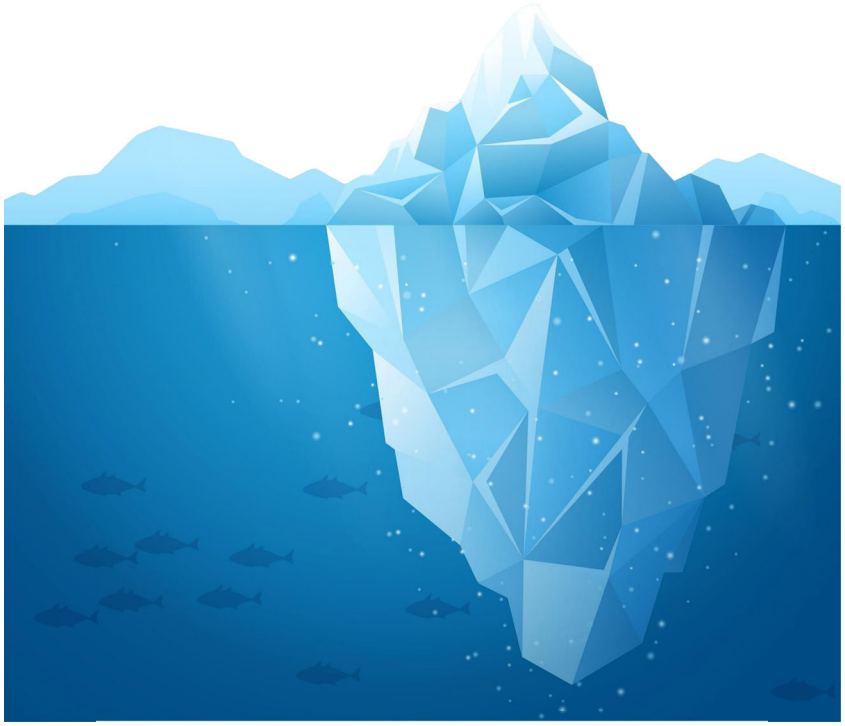
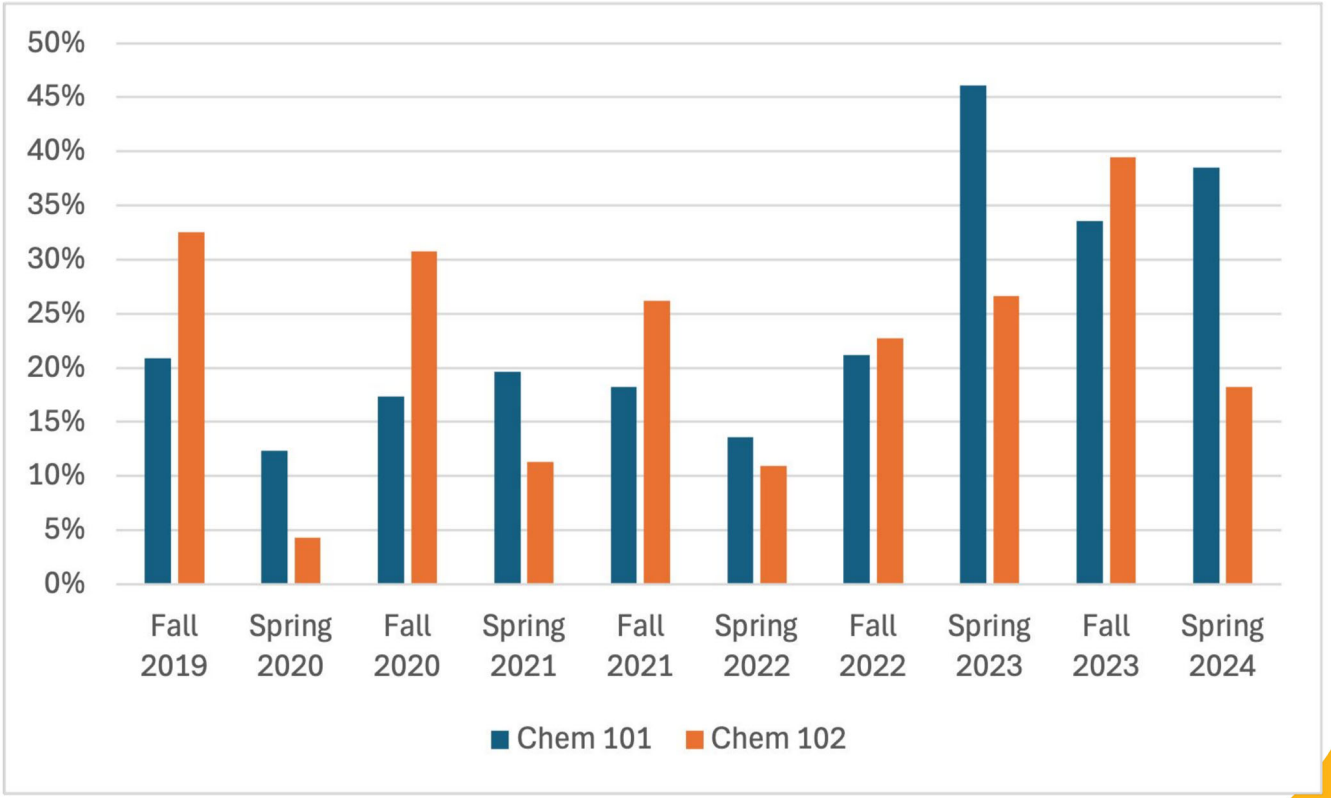


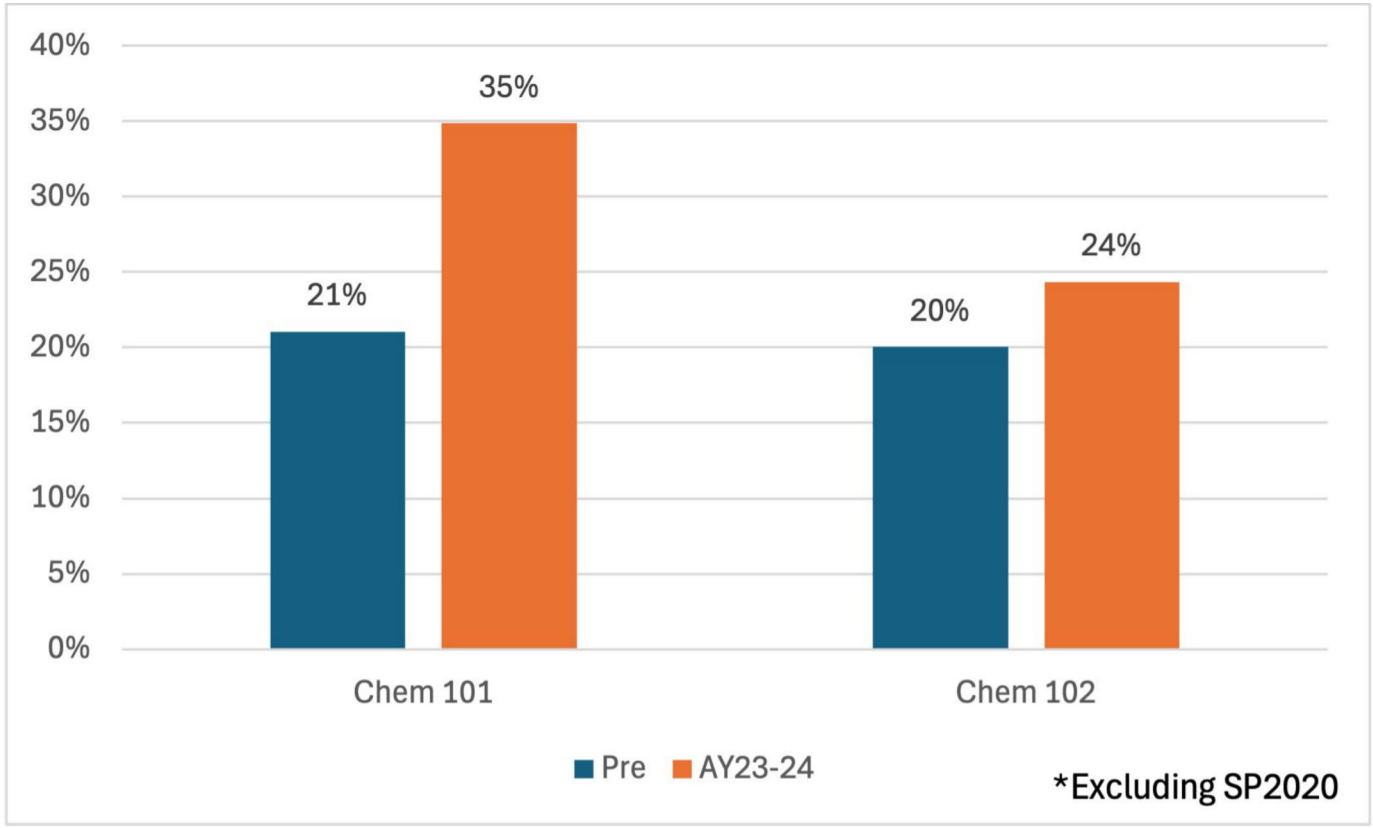
Image by pikisuperstar on Freepik

Post-Pandemic DFW Rate Trends

- Initial drop in DFW rates during the shift to online learning
- Subsequent spike beginning Spring 2023
- Higher DFW rates in Chem 101 compared to Chem 102



Overall DFW Rates, Fall 2019 - Spring 2024



Intervention Strategies & Measurement Challenges

Interventions:

- Spaced practice to enhance engagement
- Up to seven waves of personalized nudging messages

Measurement Challenges:

- Complexity due to high number of message permutations
- All students received multiple interventions

Lagging Effects of the Pandemic

- Disrupted STEM education during critical high school years
- Socio-emotional development gaps affecting current students
- Potential for elevated DFW rates until at least AY 2026-27

Image courtesy ChatGPT

Key Considerations for Effective Personal Messaging

- Takes time to craft messages for various populations
- Emails are more personal when they come directly from the instructor and messages can be easily searched for if needed
  - significant increase in email volume
- Personal posts allow for:
  - embedding links
  - open, read, and click data
  - faculty member relies on DoIT to send

Bridging Messaging and Engagement for Student Success

- We know personalized messaging works
- We know course engagement improves student outcomes
- How can we establish the link between messaging and engagement?

Can we see which embedded links students click?

Can we get more information from student activity by assessing their immediate progress or a specific action, or set of actions, in Blackboard after receiving a message?

Can we further improve the messaging to students by assessing their follow through after lower stakes milestones, especially before higher weighted summative assessments?

Q & A