

# ***Universal Design for Learning in Online Spaces***

***Paul Krouss***

***Teaching Associate Professor***

***Faculty Lead for Innovative***

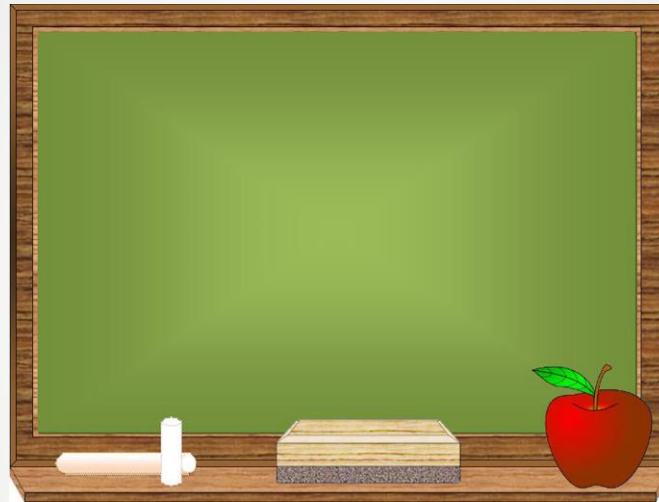
***Pedagogies***

***Washington State University Vancouver***

# Acknowledgements

- Academic Services
  - Michelle Eccles
  - Chris Rhoads
  - Scott Fraser
  - Jessica McKee
  - Jonathan Carr
- Access Center
  - LaRonda Zupp and company
- WSU Librarians

**When we design a course for the  
average student...**

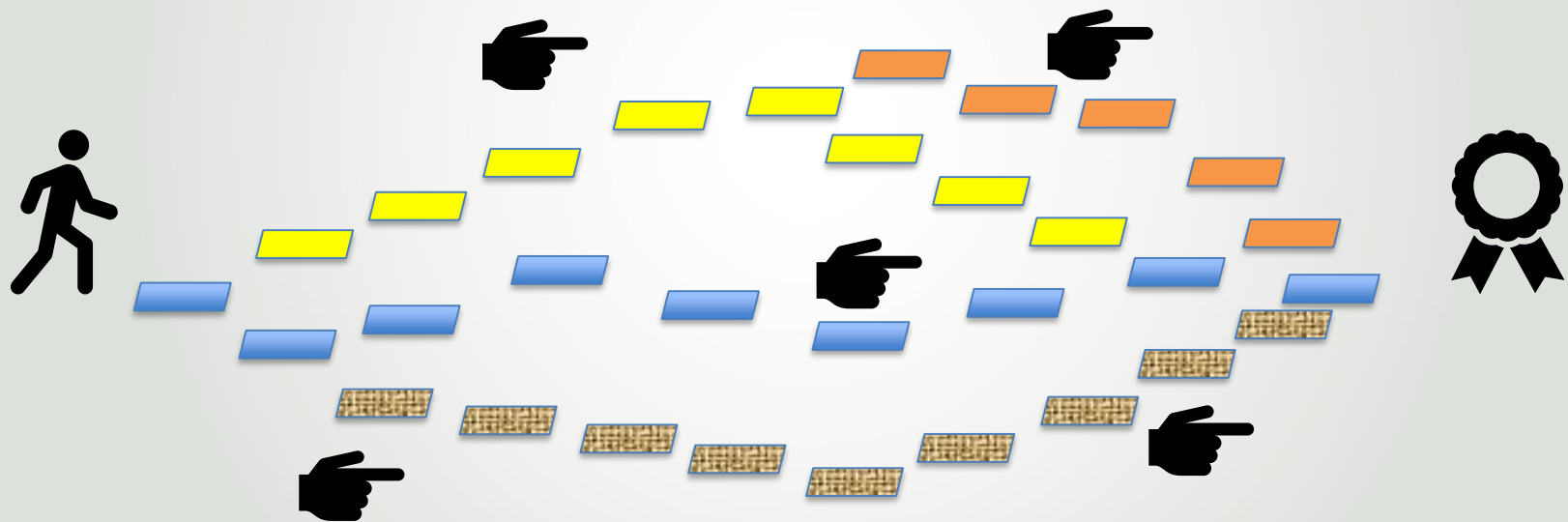


**... we design the course  
for no one.**

# Removing Barriers on the Path to Student Learning Outcomes



# Creating multiple paths, removing unnecessary barriers on the path to Student Learning Outcomes



# Universal Design for Learning: Connecting the Dots

Work in industry designing products for consumer and commercial use.

Seeing student accommodations really work.

UDL

Learning how students use my resources; seeing benefits.

# Find the accommodation

First Floor Vancouver  
Undergraduate  
Building Bathroom.

-Photo Credit: Me.



# Find the accommodation





# Disability is a societal construct

If nearly everyone  
could levitate, stairs  
would be an  
accommodation for  
the few who could  
not.



# Universal Design for Learning

Universal design for learning (UDL) is a teaching approach that works to accommodate the needs and abilities of all learners and eliminates *unnecessary* hurdles in the learning process.

<https://teaching.cornell.edu/teaching-resources/designing-your-course/universal-design-learning>

Designing for the margins.

Or at least what we thought were the margins

# Maybe we were already at a margin

## Math 103

“Traditional” class

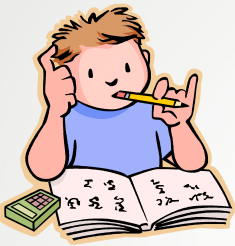
- Book ← Largely unread
- Lecture ← Hard to follow in real time
- Homework ← A few examples, then good luck!
- Tests ← Oh, now I hear the student voice

# Why flip Math 103?


*Flipping a course is less about posting videos and more about what you can do during class*




Material presented  
in video format



Comprehension  
Assessment:  
introductory  
exercises to give  
students awareness  
about video  
comprehension



Students work in groups  
and see demonstrations  
of exercises. Students  
present work and are  
able to work beyond  
introductory examples



Student completes  
homework, prepares  
for next class

# Maybe flipped closer to the design center

## Math 103

“Flipped” class

- Book ← Videos and Book
- Lecture ← Pause me, check understanding
- Homework ← Some worked, with feedback
- Tests ← I get to hear the students daily

# Three Principles of UDL

- Multiple means of **engagement**

What motivates one student to learn may not work for another.

- Multiple means of **representation**

Using different types of media in accessible formats.

- Multiple means of **action and expression**

Allowing students multiple ways to demonstrate their knowledge.

What does this mean for our online presence?

# Working from the inside outward...

University/Department Tools and Standards

Canvas (LMS) Course Space

Modules

Individual Postings

# Posting Video



## Why use Video

- Videos provide another level of **engagement** beyond text.
- Videos can give another **representation** of the material for class.
- Student generated videos could be a form of assessment where students can **express** themselves in something other than a class presentation.

## Video Tips

- Give students **control** over playback speed, size, ability to pause...
- **Captions\*** are used by more than people with hearing loss.
- Posting **transcripts** (preferably with visual descriptions) can be more screen reader friendly.
- Break your videos up into sections with **shorter** duration.
- Student-made videos should also be **accessible**.

\*Auto-generated captions are improving, but not sufficient for an accommodation.  
--Your librarians are a great resource for finding accessible, quality videos.



# Posting Audio (Podcasts)

## Why use Audio

- Similar to video, audio can address **engagement**, **representation**, and **expression**.
- Easier for students to generate high quality, accessible audio with transcripts.



## Audio Tips

- Give students **control** over playback speed, volume ...
- Post with **transcript\***.
- Break your audio into sections with **shorter** duration or into chapters.
- If you are providing a link, make sure the audio format is common across platforms (MP3).

\*Auto-generated transcripts are not sufficient for an accommodation.

# Posting Text



## Why use Text

- Text can be **engaging** and an efficient form of **representation**.
- The ability for students to **express** themselves via text is an important skill.
- Text can be accessible when other technologies are not and maybe be the preferred medium of the student.

## Text Tips

- Give students **control** font size, type, color ...
- Provide **Alt-Text** with images in the document
- You may need special **plug-ins** to create accessible text in some disciplines (example: mathematics)
- Make your documents easy to navigate with table of content, logical layout.
- Make sections a manageable size.
- Avoid putting text in an image.

# These resources work together!

Multiple means of accessing topics and material can be reinforcing.



# Designing for the Margins: Where exactly were these margins?

Beware the textbook as default bias.

There is so much more available to us!

# Sample video Roll Film!



## 1 Greatest Common Factor

Wednesday, February 20, 2024  
4:54 PM

§5.5

GCF - Greatest Common Factor

What is the GCF of :

$4xy^3$  ,  $20x^2y^2$  ,  $28xy$

All right, so this is  
section 5.5 in our book.

# Organizing your course by modules

Many faculty organize their courses by week or by topic, typically contained in a module online.



Think of a module as a one-stop shop, where students can find all they need for the week/topic.

# Creating Module Guides

Create a to-do list for the week.

- Material to be reviewed (and by when).
- Create low stakes comprehension assessments for reviewed material.
- Provide examples and sample work.
- What you expect the student to produce and turn in (with submission instructions).
- For projects that span multiple modules/weeks, give **reminders** and **checkpoints** to gage progress.



# Sample Module

☰	▼	Section 2.6	✓	+	⋮
☰		📄 Video 1 Section 2.6	✓		⋮
☰		📄 Video 2 Section 2.6	✓		⋮
☰		📄 Video 3 Section 2.6	✓		⋮
☰		📄 Video 4 Section 2.6	✓		⋮
☰		🚀 Section 2.6 Comprehension Assessment Sep 9   10 pts	✓		⋮



# Consistency in your modules

Not every week will look exactly the same.  
However, strive for consistency.

- If you make a weekly checklist, try to do this for every week.
- If some of your assignments show up on the Canvas (LMS) calendar, try to make all of them show up there.
- If you time release your course materials or assignments, try to follow the same pattern so students can better plan.

**Modules: Better than yelling  
instructions as students bolt  
for the door**

## Learning how to use the online platform is seldom a Student Learning Outcome

Success in a course has always involved more than mastering the content. This is especially true in courses with online components...

- Navigating the course
- Planning and organizing work
- Tracking one's own progress

## Make your course space easy to navigate

- Your course space is not where students are going for entertainment. Keep it simple.
- Establish routines with your course space so students visit **regularly**
- Keep university supports and resources front and center.
- Make module organization obvious

## Boring (but Effective) Canvas Page

MATH-103-VANCO-1-LEC > Modules

2022 Fall

Account

Dashboard

Courses

Calendar

Inbox

Home

Announcements

MyLab and Mastering

Zoom

Assignments

Discussions

Grades

People

Collapse All

View Progress

+ Module

- Course Information ✓ +
- Math Tutoring ✓
- Office Hours Link ✓
- Math103\_01\_Syllabus\_Fall2022.pdf ✓

# Planning and Organizing Work

- Creating regular work **routines**
  - Discussion Forums
- Make consistent use of the Canvas (LMS) **calendar** feature
- Make assignments and assessments clear in course **syllabus**
- Use **checklists**

Multiple representation of  
your schedule.



# Opportunities to self-assess

- Frequent low stakes quizzes and comprehension assessments
- Keep gradebook current
  - ✓ Early assessments
- Create personal student journal to record time/effort in the course

## Are Course Analytics UDL?

- Engagement
- Representation
- Expression

We intend to design for the margins.  
Analytics might help us see what we  
have missed.



## Consistency in the University/Department

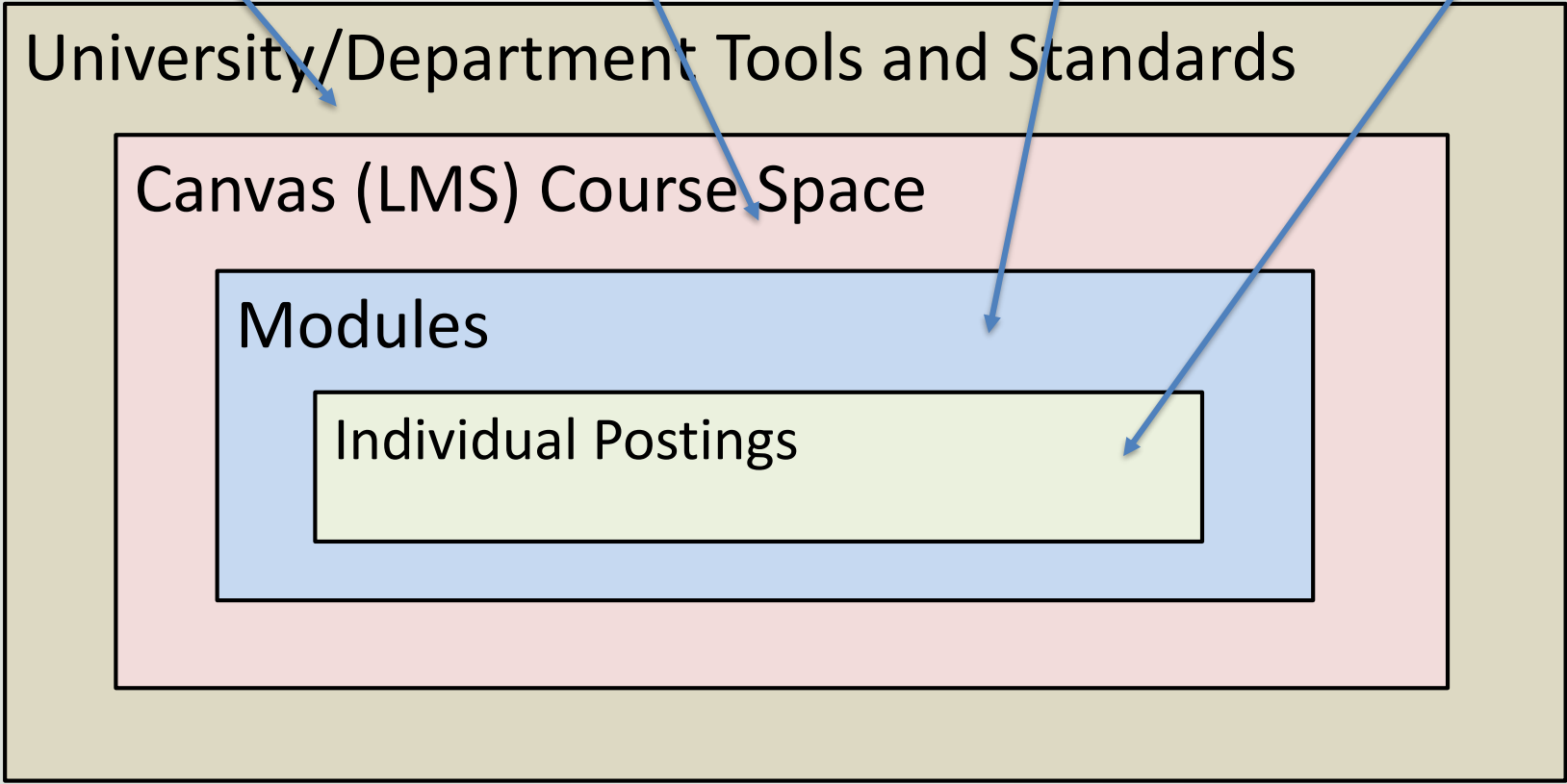
- Does your course look drastically different from your colleagues' courses?
- Using Canvas (LMS) University supported tools
  - Vetted for accommodations
  - Student support for IT issues
- Introduction of new technology should be purposeful.

Smooth the transition class to class

Help students navigate your course

Facilitating working through a topic

Multiple representation of materials



# Assessments

**Formative assessments** are tools designed to help both student and instructor understand progress towards learning goals. These can often improve student engagement.

- Create low stakes comprehension assessments for reviewed material
- Create personal student journal to record time/effort in the course
- Discussion forums to introduce new material
- Module exit tickets / one-minute papers

# Assessments

Much of UDL is about offering **choice** and **control**.

End of semester presentations might become a

- Presentation
- Poster
- Podcast
- Movie
- Something you never considered....

# Assessments

Exam-style assessments intend to measure a student's mastery of skills or topics at a moment in time. A good exam is difficult to write, and ***online versions can be harder.***

- Create especially **clear instructions** (including how to turn in the exam – ideally, a tool they have used previously).
- Avoid time crunches - **do not test for speed.**
- You're **not there to answer student questions** during exam

# Give students question choices

Answer one of the following two questions

- a) Use the **principle of mathematical induction** to show that for any integer  $n \geq 0$ , it follows that  $6 \mid (n^3 - n)$ .
- b) Use the **principle of mathematical induction** to show that

$$\sum_{k=1}^n k^2 = \frac{n(n+1)(2n+1)}{6}$$

# Avoid specific cultural references

How many 5-card poker hands are there?



# A few last comments

- No one is doing this perfectly
- You are already using UDL principles in your teaching and course presentation
- You know what more you could be doing for UDL



# A few last comments

- Building your course resources with UDL in mind is easier than going back to adjust a course
- Listen to students
  - Create paths
  - Remove hurdles

You cannot teach a man anything; you can only help him to find it within himself. – Galileo

# Additional Resources

- Academic Services / AOI
- Access Center
- Librarians
- <http://udloncampus.cast.org/home>

**Thank you**

Time for questions and comments