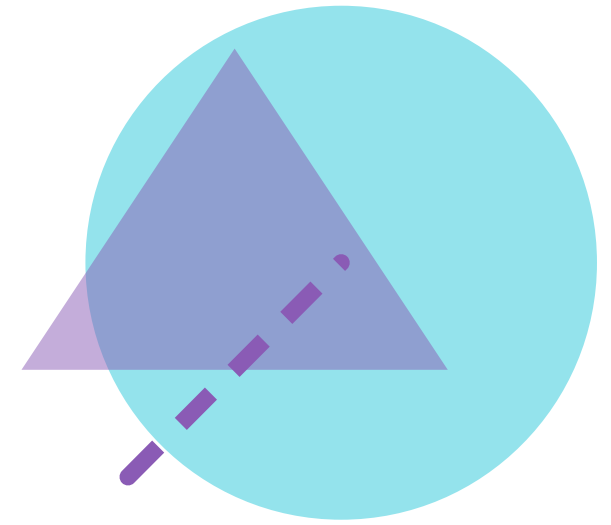


Digital literacy by design:



Restructuring foundational
technology education for today's
digital landscape

Ryan Haas

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East Tennessee State University



About Me

Computing/Information Systems background.

My time working in my university's IT help desk gave me insight into how help desk tiered support system could be used to support students, and into what **essential** digital literacies were lacking among students **and faculty!**

Teaching "Using Information Technology" course at East TN State Univ. since 2022, began full-time in 2024.

I'm not an instruction design expert (at all), but my friend & colleague, [Dr. Dubay](#), and I have learned a lot from our experience in "building the plane while it's flying" last Fall. Today = my attempt to share what we learned from that experience/our ongoing experiment.



CSCI 1100: Historical context & the need for redesign

1

Continuous enrollment growth

- Fall 2008-2024: 34% increase.
- Last Fall: 1923 students!

- 2008: 13 faculty + GA team
- Now: 3 faculty + smaller GA team

Shrinking staff support

2

3

Student engagement

- Students not happy with the course → impacts performance → impacts pass rates, real learning

CSCI 1100: Historical context & the need for redesign



- At the time of its inception, our CSCI 1100 technology course centered around **office applications** made sense.
- Now, **students enter familiar with office applications** (e.g., Google Docs, Slides). How do we provide the foundation to those who need it, engage those who know it?



- **Students need exposure to additional digital literacies** and competencies to prepare them for four-year success and jobs.
- Equally important, **we want more students to enjoy the course!**

The challenge of redesign

How do we create a course that...



1. teaches the core digital literacies students need for **four-year success**?

-
2. prepares students for **careers**, and life in the information age?

- Apply skills, practices, & digital tools to...
 - see success in the work force (**strong computational thinking!**)
 - lead a more balanced life! *"Work smarter"*
- Discern **cyber risk**, cultivate online identity





Digital literacy in the 2020s

What digital competencies do
students need to succeed in 2025?

Defining digital literacy



- using digital technology to find, evaluate, create & communicate information (García-Pérez et al., 2021)

“Digital competence”: used interchangeably with DL

- Zan et al. (2021): confidently & critically use digital technologies.
- a set of skills for using technology efficiently in daily life (Hubschmid-Vierheilig et al., 2020; Petrova et al., 2019, as cited in Huu, 2023)



- Importance of navigating the digital landscape in a post-truth world: distinguishing the veracity of information, how it was created, factuality, bias (AI-generated?, sources?, relevance? conflicts of interest).

Digital literacies for academic success



DL for academic success: tech skills of incoming FY college students (McCarron & Frydenberg, 2023)

Study of 440 first-year students at business-focused university in New England:

- Self-assessed **tech competency**: Only 34% students considered themselves “tech savvy”, with most ranking themselves as beginners or intermediates across various digital skills*
*familiarity with word processing, spreadsheets, presentation software, database, email, Windows/Mac OS usage, web browsers, digital media editing, online & social collaboration
- **Limited formal tech education**: Nearly 16% took no computer-related high school course. Most common high school tech topics: email (58%), using the Web (38%), social media (38%), spreadsheets (34%).
- **Most important perceived skills**: spreadsheets, programming, word processing perceived most important for academic & professional success, though many lacked proficiency in these area.
- **Skill discrepancies**: “Beginner” self-identifiers unable to do basic spreadsheet tasks. “Intermediate” self-identifiers unable to do intermediate-level word processing, web browsing tasks.
- **Lack of personal cybersecurity knowledge**: 64% expressing concern about online privacy, but only 45% reporting they could explain ways to protect themselves from unauthorized access.

DL for academic success: tech skills of incoming FY college students (McCarron & Frydenberg, 2023)

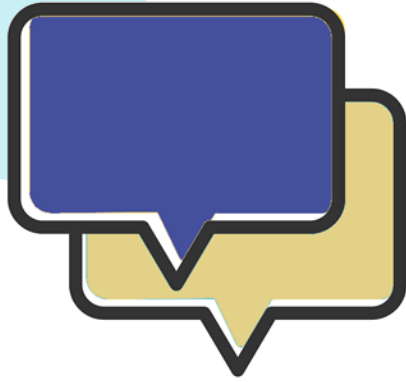
Takeaways:

- The business focus of this university may impact what skills students view as most important, however...
- Broadly speaking, students show a tendency to **overestimate their abilities** in some digital skills*.
- **Office software** and familiarity with **operating systems** (mainly Windows) continues to be important for first-year students.
- FY students need core **personal cybersecurity literacy**.
- While perhaps students in other domains may not emphasize **programming**, programming exposure can nonetheless be used as a vehicle for practicing computational thinking (CT).
 - CT can foster positive digital self-efficacy and enjoyment, even in non-STEM majors (Liao et al., 2022).

*Digital skills surveyed included familiarity with word processing, spreadsheets, presentation software, database, email, Windows/Mac OS usage, web browsers, digital media editing, online & social collaboration

DL for academic success:

3 factors (Lukitasari et al., 2022)

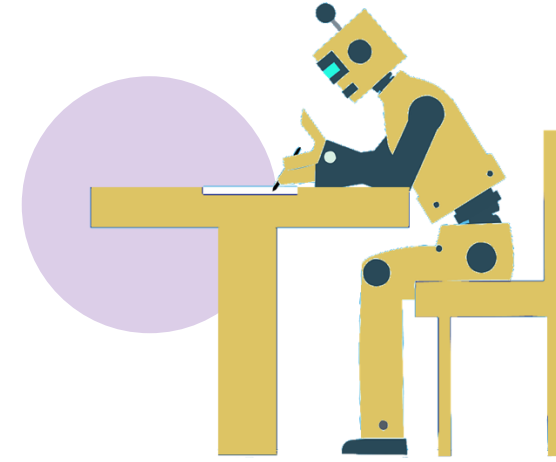
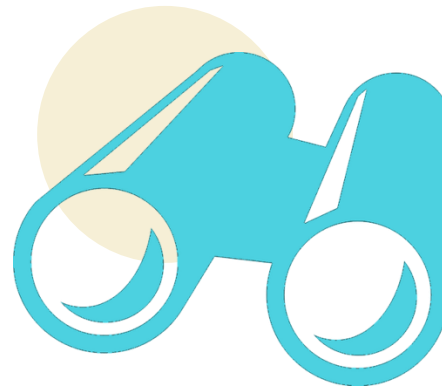


Communicating digital content

Our students communicate information through infographics, charts, portfolio websites.

Our students explore using AI to find or summarize information, different tools such as Canva for content creation.

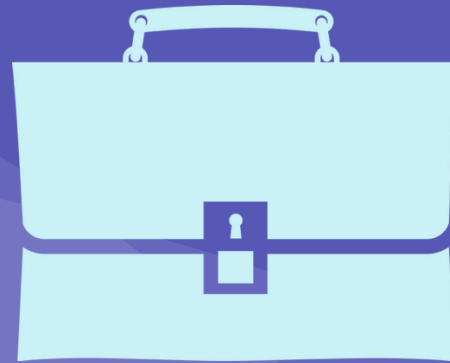
Exploring digital content



Using digital content

Our students transform sales data to derive additional context for visualizing revenue & cost by region, time-period. Data → info. → decision-making!

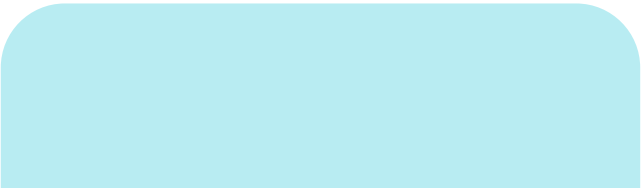
Digital literacies for job success



DL for success in vocational education

5 critical skills

(Jia and Huang, 2023)

1. Basic computer skills
 2. Internet research and information management
 3. Digital collaboration and teamwork
 4. Industry-specific software proficiency
 5. Digital safety and security awareness
- 

DL for job success:

3 key aspects (Huu, 2023)

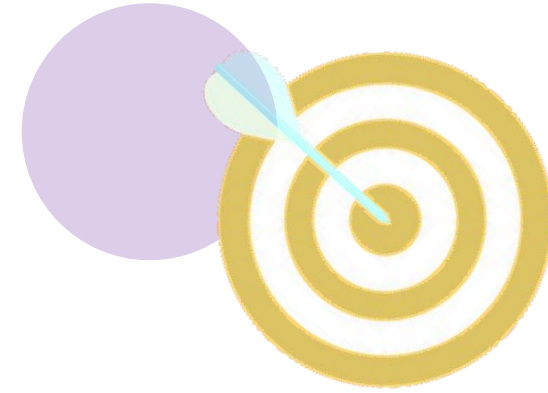
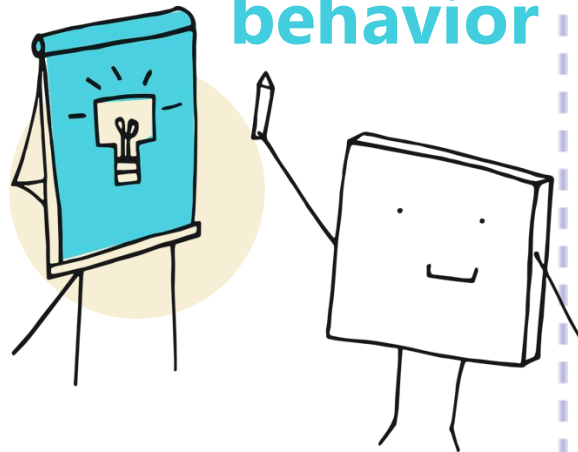


Digital autonomy

Taking agency:
independently
choosing digital
tools, platforms,
approaches

Leveraging
digital skills to
create, promote,
& implement
new ideas

Innovative work behavior



Employee impact

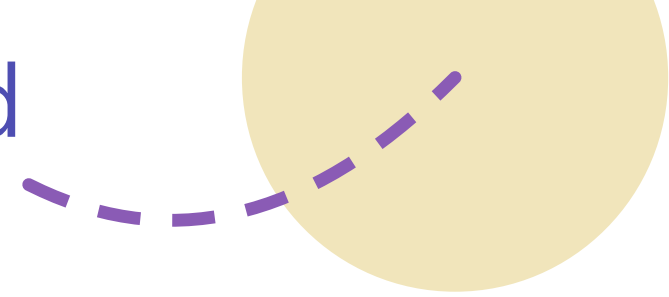
Digital competence
→ job performance
→ organizational
outcomes

The background is a solid dark blue color. In the top left and top right corners, there are clusters of overlapping circles in various shades of light blue and white. Along the bottom edge, there are large, flowing, wavy shapes in lighter shades of blue, creating a sense of movement and depth.

CSCI-1100's new curriculum:

Foundational software + Broad,
hands-on exposure

Let's set a new standard for others to follow



As I am reviewing our preexisting CSCI 1100 course equivalents, I am discovering that most map to computer/business applications.

- Some include cybersecurity literacy, networking
- Few are providing exposure to digital content creation & sharing outside of Microsoft Office 😞
- Let's **set a new standard for other postsecondary institutions!** We are far from perfect, but we are making strides.



CSCI 1100 Course Topics

01

Information Literacy

Introduce the foundational skills needed to discern the good from the "bad" in digital content across various modalities effectively.

02

Tech Product Literacy

Selecting the right technology for various tasks and needs. Evaluate technological products, compare features, & make informed decisions about which tools and devices are best suited for specific purposes.

03

Intro to Programming

Define and use fundamental programming concepts s.a. variables, loops, & conditions to solve a problem. Learning to *think* like a programmer → valuable contributions to workplace automation.

04

The Connected World

Exploring how digital and communication technologies connect people globally. Topics include social media, gaming, streaming, and troubleshooting connectivity issues.

CSCI 1100 Course Topics

05

Web Literacy

Explain the basic structure of the web and how web pages are constructed, explore accessibility and universal design principles, and apply design principles to create a portfolio website in Google sites.

06

Data Literacy

Understand the role of data in the creation, synthesis, and sharing of information. Interpret & analyze datasets to extract meaning. Create clear data visualizations using spreadsheets & communicate insights.

07

Digital Content Creation

Tools and principles needed to create and manage diverse digital content in today's media-rich environment. Use Canva to create an infographic capturing the main points of an article on the web.

08

AI & Machine Learning

Principles behind AI and machine learning, evaluating accuracy, and ethical considerations. Learn what kind of data is required for training models & how to use these tools effectively and responsibly.

See the app my Summer students helped build using [CLEAR prompting strategies](#), basic Python familiarity, and a lot of computational thinking!



CSCI 1100 Course Topics

09

Cybersecurity & Privacy

Protecting digital information from threats. Learn about common security risks, privacy concerns, and strategies for safeguarding personal and organizational data.

10

Emerging Technologies

Exploring the latest technological advancements. Students learn about innovations like blockchain, virtual reality, and advanced robotics and their potential impact on various fields.

11

Digital Citizenship

Teaching responsible and ethical behavior in the digital world. Students learn about online rights and responsibilities, digital footprints, and the importance of respectful communication.

12

Information Tech. Tools

Learning to effectively use Microsoft Word, Excel, PowerPoint, and other tools to assist students in their immediate academic lives and their careers.

What are our students creating?

+ Gender Inequality around the World

What?

- No country has achieved gender equality, and most countries are making either no progress or going backward.
- At the current rate, it will take 131 years before worldwide gender equality.
- In another words, women's rights are under attack all over the world.



40% of women worldwide live in countries where abortion laws are restrictive



66% of women have less legal rights available compared to men



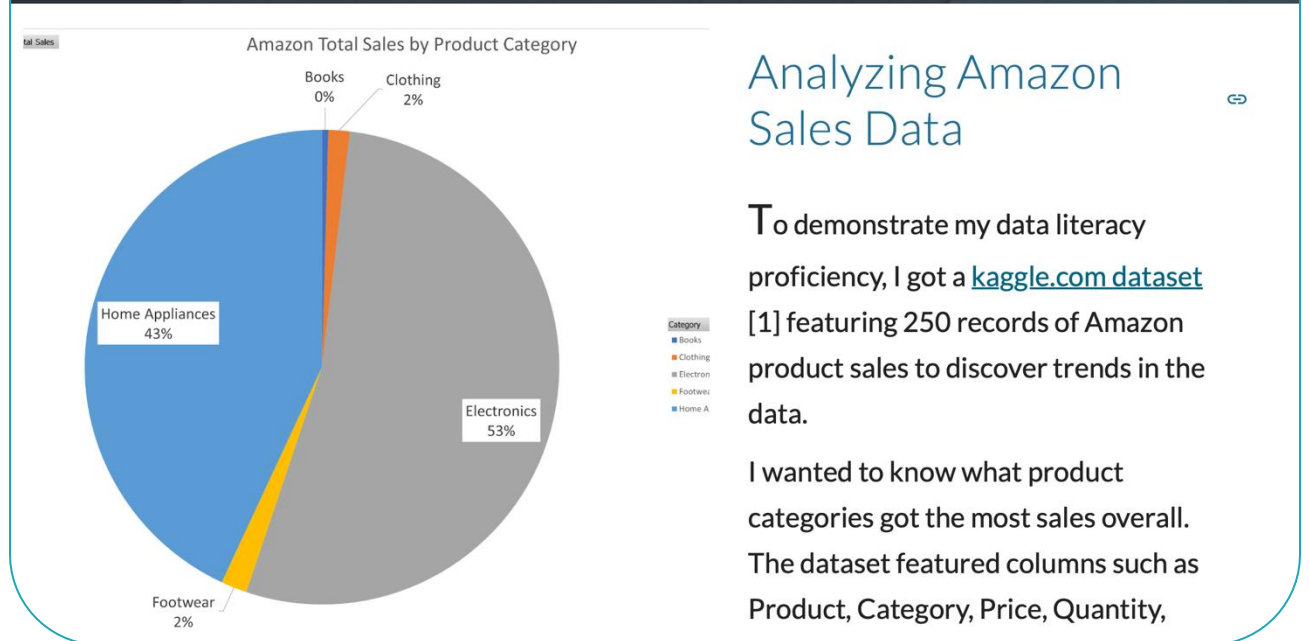
33% of women globally have suffered physical and/or sexual violence with never receiving justice



83% of women earn less than their male colleagues

Our students apply what we've discussed in Information & Data Literacy to design their own **infographics in Canva**.

Data Literacy



We follow Web Literacy with a **Google Sites** lab, creating and publishing our first website which students can use to build their final project portfolio.

Putting it all together:

The Digital Citizenship Audit (final project)



DIGITAL LITERACY



DATA LITERACY



AI LITERACY



WEB LITERACY



MICROSOFT OFFICE SKILLS

Ctrl-click image to view example

CSCI-1100's new structure:

A potential roadmap to a large-scale course with modest faculty resources (w/out courseware)

The new structure of CSCI 1100

- Faculty for quality instruction
- Slides & activities designed in house
- Freedom to implement their own activities, additional materials besides core material. More authentic, personal experience than courseware videos with robot voices

**Large lectures
for exposure**

**Smaller labs
managed by
graduate assistants**

- Lab sections throughout the week for hands-on exploration. – Put prior week's lecture concepts into practice
- GAs administer guided lab walk-through (video guides in online labs)

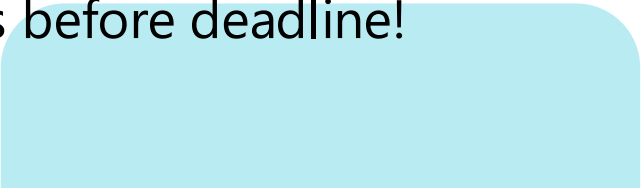
- ALL students email common support email → mail rules direct to student's lab instructor
- GAs take shifts throughout the week, providing in-person and online support
- GAs can escalate to faculty, leadership when appropriate

**Help desk support
system for responsive,
flexible support**

Lightweight grading to encourage exploration



- De-emphasize points system, reduces stress, & communicates what we value
 - Labs as a “check-off”: **Most students who submit receive “Exemplary” spec.** – Reinforce the importance of lab attendance to receive instructor’s guidance
-

- **Exemplary**: meaningful engagement w/ the activity & authentic reflection. (Not necessarily perfection, but a perfect grade on the book)
 - **Accomplished**: meaningful engagement w/ the activity, but with a significant oversight (e.g., a missing artifact or a reflection question unanswered)
 - **Building Proficiency**: Missing most requirements. Failure to adhere to most instructions
 - **Below Standard**: Missing virtually all requirements. Often an accident (wrong file) or the result of starting lab 10 minutes before deadline!
- 



Aligning grading standards with our purpose

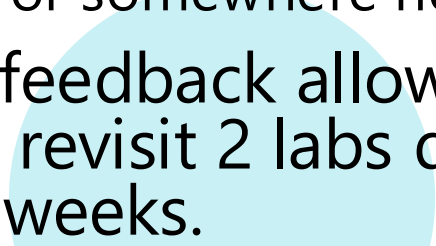
Courseware wasn't cutting it:

Demotivational grading →
Counterproductive results

- Rigidly designed graded training pathways punish exploration
- Automated grading: convenient, consistent, ... and discouraging
 - Students w/ the least digital competence are discouraged the most because the grading standards don't align with our course purpose.

Our purpose: Students engage →

Leave with foundational skills &
knowledge + confidence to
explore, fail, iterate

- We expect good-faith engagement in the labs, not flawless execution or perfection.
 - **Reasonable** attempts are rewarded full credit or somewhere near it.
 - Actionable feedback allows students to revisit 2 labs during "Make-up" weeks.
- 

Lab Rubric Example: File Management Lab

Folder Structure

Criterion	Excellent (3 points)	Proficient (2 points)	Needs Improvement (1 point)	Not Provided (0 points)	Score
Folder Structure Created	Created main folder (e.g., "CSCI-1100") and a subfolder for lecture resources inside OneDrive. Folders are logically named.	Created main folder (e.g., "CSCI-1100") and a subfolder for lecture resources inside OneDrive. Folder names lack specificity.	Missing main folder (e.g., "CSCI-1100") or subfolder or both folder names lack specificity.	No evidence of the criterion.	/ 3

Subfolder and File

Criterion	Excellent (2 points)	Proficient (1 point)	Not Provided (0 points)	Score	
Subfolder Contains Correct File	The subfolder contains the correct file (a PDF export of the "File Management 101" slides).	The subfolder contains a file, but it does not seem to be the correct file.	No evidence of the criterion.	/ 2	
File Name Correctly Modified	The file name has been modified to include an indication of which module it corresponds to (e.g., includes "01", "Tech_Tips_Module", etc.).	The file name has been modified but does not clearly indicate which module the file corresponds to.	No evidence of the criterion.	/ 2	

Screenshot Submission

Criterion	Excellent (3 points)	Proficient (1 point)	Not Provided (0 points)	Score	
Image Shared Appropriately	Provided a direct screenshot of the file listing that includes the file's path in OneDrive on the Web.	The screenshot does not depict the file's path or the file listing, does not depict OneDrive on the Web, or the image was not a screenshot (e.g., was a camera photo of device screen).	No evidence of the criterion.	/ 3	

Overall Score

Exemplary	Accomplished	Building Proficiency	Below Standard		
9 points minimum	7.5 points minimum	6.5 points minimum	0 points minimum		

Grader's View: Checklists

- Our rubrics are a bit more nuanced than simple binary checklists, but not by much!
- Rubrics are transparent to students before the submission. --> Itemized feedback automatic.
- Custom written feedback to encourage student, identify steps to improve or provide opportunity to resubmit.

Subfolder Contains Correct File

Excellent 2 / 2

The subfolder contains the correct file (a PDF export of the "File Management 101" slides).

Add Feedback

File Name Correctly Modified

Excellent 2 / 2

The file name has been modified to include an indication of which module it corresponds to (e.g., includes "01", "Module 1", "Tech_Tips_Module", etc.).

Add Feedback

Screenshots

Image Share

Proficiency

The screenshot does not depict the OneDrive file path (e.g., was not

Overall Grade

8 / 10

Overall Feedback

Paragraph B Bulleted List Numbered List + Lato (Recom... 20.9px Bold Italic Undo Redo

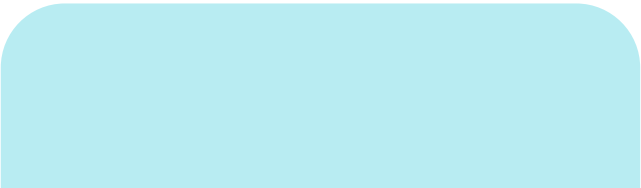
<name>,

Great work, there's just one thing missing: your screenshot does not depict the OneDrive file path! Please resubmit this lab again with the path included during our upcoming Week 4 make-up lab week for to earn full credit!

Structural advantages



- The large lecture format allows the Computing Dept. to devote dedicated faculty → more consistent high-quality lesson delivery
- Help desk system provides timely support in person & online. Insulates faculty from high volume of emails that can be handled as “first line” inquiries & incidents

-
- Lightweight grading better for students and instructors
 - Cultivates graduate assistants as instructors and leaders
 - All GAs enroll in 3-credit hour course for mentorship, pedagogy & class management training, check-ins, and 1-on-1 meetings
 - Keeps instruction and relationships personal & authentic
 - Minimizes financial costs by using entirely in-house lecture & lab material. When we use online platforms (Google Sites, Canva) in lab, we use free tiers
- 



CSCI-1100 redesign report:

Fall 2024 – Spring 2025
outcomes

In a nutshell

01

Class averages & pass rates

The Spring saw strong performance across both delivery methods at the midterm period. The overall course average was 88.34 w/ a pass rate of 93%. Online students show stronger performance.

02

Student sentiment

Online students' self-assessments of how much they enjoyed a particular lecture topic reveal that sentiment is more positive in Spring. This reflects improvement from Fall. Programming a challenge.

03

Student understanding

Online students' self-assessments of their understanding before/after lecture shows confidence after all lectures so far. Programming's after score is still lower than desired.

04

Student feedback

Online students' written feedback reveals an overall favorable perception of the content, the clarity of the lessons, and their utility. The programming module still needs improvement.



Class averages & pass rates

Class averages (Fall '24 final)



Overall Course Avg	Overall Lecture Avg	Overall LabAvg
83.28	90.74	86.78

Out of 1898 students

In-person

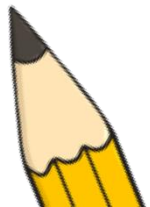
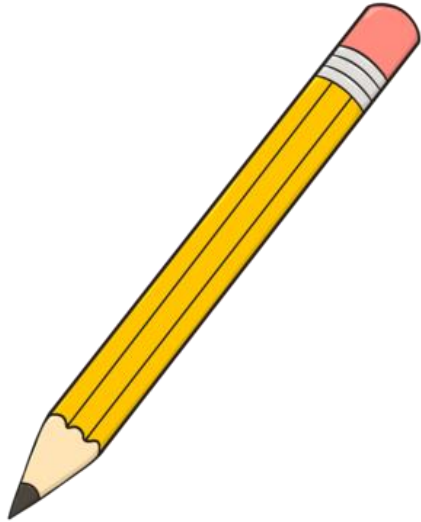
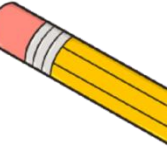
Course Avg	Lecture Avg	LabAvg
84.06	90.27	85.43

Out of 1106 students

Online

Course Avg	Lecture Avg	LabAvg
82.50	91.31	88.63

Out of 792 students



Class averages (Spring '25 midterm)



Overall Course Avg	Overall Lecture Avg	Overall LabAvg
88.34	88.03	88.96

Out of 866 students

In-person

Course Avg	Lecture Avg	LabAvg
83.35	81.33	88.88

Out of 439 students

Online

Course Avg	Lecture Avg	LabAvg
94.88	94.72	93.39

Out of 427 students

Pass rates (Fall '24 final)

(60% or higher = passing)



Overall Percent Passing

86.03

In-person

Percent Passing

85.35

Online

Percent Passing

86.97

Pass rates (Spring '25 midterm)

(60% or higher = passing)



Overall Percent Passing

93.19

In-person

Percent Passing

87.93






Online

Percent Passing

98.59

Exit Tickets:

Post-lecture self-responses






On a scale of 1 to 5, please rate your understanding of this week's topic before the lesson started.				
1	2	3	4	5
(no understanding)				(I understand everything)
What specific aspects, if any, of this week's topic remain unclear or confusing for you? Please list any notes or feedback.		Topic was explained well, no questions at the moment.		
On a scale of 1 to 5, please rate your understanding of this week's topic now.				
1	2	3	4	5
Please rate your enjoyment of this lesson by circling one of the following:				
				
strongly dislike	dislike	neutral	like	strongly like

Sentiment

How much are students enjoying the lectures?

1 2 3 (4) 5

Please rate your enjoyment of this lesson by circling one of the following:

				
strongly dislike	dislike	neutral	like	strongly like

Sentiment by lecture topic

online students

Topic	Overall Sentiment	Sample Size
Digital Literacy	😊 Like	760
Info. Tech Tools: Word	😊 Like	719
Tech Product Literacy	😊 Like	736
Intro to Programming	😐 Neutral	781
Web Literacy	😊 Like	758
Excel	😐 Neutral	761
Data Literacy	😊 Like	707
Digital Content Creation	😊 Like	709
AI and Machine Learning	😊 Like	714
Cybersecurity and Privacy	😊 Like	703
Info. Tech Tools: PowerPoint	😊 Like	723



Fall 2024

Scale



Strongly dislike



Dislike



Neutral



Like



Strongly like

Sentiment by lecture topic in-person students

Topic	Overall Sentiment	Sample Size
Digital Literacy	😊 Like	741
Word	Unavailable	
Tech Product Literacy	😊 Like	997
Intro to Programming	😐 Neutral	904
Web Literacy	😐 Neutral	787
Excel	😐 Neutral	761
Data Literacy	😊 Like	864
Digital Content Creation	😊 Like	785
AI and Machine Learning	😐 Neutral	768
Cybersecurity and Privacy	😊 Like	636
PowerPoint	😊 Like	747

 **Fall 2024**

Scale

😭 Strongly dislike

😞 Dislike

😐 Neutral

😊 Like

😍 Strongly like

Sentiment by lecture topic: Online students

Topic	Overall Sentiment	Avg	Mode	StdDev	Responses
AI and Machine Learning	😊 like	3.77 / 5	4 / 5	0.76	395
Data Literacy	😊 like	3.60 / 5	4 / 5	0.74	405
Digital Content Creation	😊 like	3.73 / 5	4 / 5	0.77	399
Digital Literacy	😊 like	3.75 / 5	4 / 5	0.62	410
Excel	😊 like	3.51 / 5	4 / 5	0.82	392
Intro to Programming	😐 neutral	3.33 / 5	3 / 5	0.93	407
Tech Product Literacy	😊 like	3.73 / 5	4 / 5	0.66	416
The Connected World	😊 like	3.70 / 5	4 / 5	0.65	413
Web Literacy	😊 like	3.58 / 5	4 / 5	0.74	395
Word	😊 like	3.76 / 5	4 / 5	0.73	409



Spring 2025

Scale



Strongly dislike



Dislike



Neutral



Like



Strongly like

Understanding of topics

Students' self-assessments

On a scale of 1 to 5, please rate your understanding of this week's topic before the lesson started.

1	2	3	4	5

(no understanding) (I understand everything)

On a scale of 1 to 5, please rate your understanding of this week's topic now.

1	2	3	4	5

Understanding by lecture topic

Online students

Topic	Before Average	After Average	Before StdDev	After StdDev
AI and Machine Learning	2.84 / 5	3.86 / 5	1	0.76
Cybersecurity and Privacy	3.07 / 5	4.01 / 5	1.01	0.72
Data Literacy	2.70 / 5	3.86 / 5	1.07	0.76
Digital Content Creation	2.84 / 5	3.87 / 5	1.11	0.83
Digital Literacy	3.02 / 5	4.10 / 5	0.97	0.71
Info. Tech Tools: Excel	2.71 / 5	3.85 / 5	1.06	0.74
Info. Tech Tools: PowerPoint	3.29 / 5	4.03 / 5	0.94	0.71
Intro to Programming	2.01 / 5	3.36 / 5	1.19	0.89
Tech Product Literacy	2.85 / 5	3.93 / 5	1.1	0.75
Web Literacy	2.55 / 5	3.80 / 5	1.18	0.77
Info. Tech Tools: Word	3.32 / 5	4.07 / 5	1.04	0.86



Fall 2024

Scale

1 (No understanding)

2

3

4

5 (I understand everything)

Understanding by lecture topic

Online students

Topic	Before Average	After Average	Before StdDev	After StdDev
AI and Machine Learning	2.84 / 5	3.86 / 5	1	0.76
Cybersecurity and Privacy	3.07 / 5	4.01 / 5	1.01	0.72
Data Literacy	2.70 / 5	3.86 / 5	1.07	0.76
Digital Content Creation	2.84 / 5	3.87 / 5	1.11	0.83
Digital Literacy	3.02 / 5	4.10 / 5	0.97	0.71
Info. Tech Tools: Excel	2.71 / 5	3.85 / 5	1.06	0.74
Info. Tech Tools: PowerPoint	3.29 / 5	4.03 / 5	0.94	0.71
Intro to Programming	2.01 / 5	3.36 / 5	1.19	0.89
Tech Product Literacy	2.85 / 5	3.93 / 5	1.1	0.75
Web Literacy	2.55 / 5	3.80 / 5	1.18	0.77
Info. Tech Tools: Word	3.32 / 5	4.07 / 5	1.04	0.86

Room for improvement

We need to improve our teaching style and lesson materials to introduce **programming** to our students, in particular. This **lower understanding** correlates with **less enjoyment**. Many students felt overwhelmed by the topic during lecture.

Understanding by lecture topic: Online students

Topic	Before Average	After Average	Before StdDev	After StdDev	Responses
AI and Machine Learning	2.99 / 5	3.99 / 5	0.98	0.67	395
Data Literacy	2.83 / 5	4.00 / 5	1.01	0.65	405
Digital Content Creation	2.90 / 5	3.96 / 5	1.00	0.72	399
Digital Literacy	3.27 / 5	4.30 / 5	1.02	0.65	410
Excel	2.75 / 5	3.83 / 5	1.05	0.71	392
Intro to Programming	2.00 / 5	3.45 / 5	1.15	0.80	407
Tech Product Literacy	2.85 / 5	4.00 / 5	1.07	0.59	416
The Connected World	2.77 / 5	4.00 / 5	1.00	0.62	413
Web Literacy	2.58 / 5	3.88 / 5	1.07	0.68	395
Word	3.41 / 5	4.22 / 5	0.94	0.66	409



Spring 2025

Scale

1 (No understanding)

2

3

4

5 (I understand everything)

Student feedback: Topics going well

01

Digital Literacy

Students generally found this foundational topic approachable and relevant. Many appreciated the CRAAP test framework for evaluating online sources, with comments like "I would like to learn more about the CRAP test" showing engagement. The accessibility of materials (provided transcripts) was specifically praised.

02

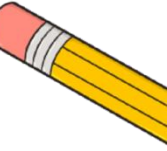
Tech Product Literacy

This topic received positive feedback for making technical concepts accessible. Students appreciated learning practical knowledge about computer components, with several mentioning they now understand terms like RAM, CPU, and GPU better. The analogies and visual aids were particularly helpful.

03

The Connected World

Students found this topic relatable to their daily lives, with many expressing they now understand concepts they regularly encounter (like bandwidth, internet security, and how 5G works). Several mentioned they enjoyed learning about systems they use daily but never understood before.



Student feedback: Challenging topics

01

Intro to Programming

Clearly the most challenging topic for students. Many expressed feeling overwhelmed by the coding concepts, particularly with Python syntax, boolean logic, and string operations. When asked what remained unclear, typical comments included answers like "I still don't really understand programming very well".

02

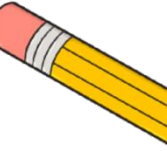
Excel

While not as challenging as programming, Excel presented difficulties for some students, particularly around formulas and pivot tables. Some Mac users noted that interface differences created additional confusion. However, many students also mentioned that the hands-on practice helped clarify concepts.

03

Web Literacy

Some students found the HTML and CSS concepts confusing, particularly those with no prior exposure to web development. Comments like "I'm still unclear on the coding aspect of using html and css" appeared several times, though many appreciated understanding the foundations.



Student feedback: General course strengths



Learning Materials Quality

01

Students frequently praised the lecture videos, transcripts, and PowerPoint slides for their clarity and organization.

Practical Application

02

Many students appreciated the real-world relevance of the topics, noting they could immediately apply what they learned.

Comprehensive Explanations

03

Technical terms and concepts were generally explained in ways that beginners could understand.

Accessibility Considerations

04

Students specifically appreciated the inclusion of accessibility topics in the Web Literacy module.

Student feedback: Pain points

01

Technical Term Overload

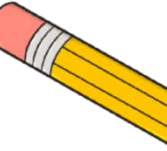
Some students felt overwhelmed by the number of new terms and acronyms, particularly in programming and tech product literacy modules.

02

Platform Differences

Multiple students mentioned confusion when their Mac/Windows versions differed from what was shown in demonstrations*.

* We provide Windows & Mac instructions for MS Office, but have yet to create Mac-based video guides.



Recommendations based on feedback



01

Additional
practice
resources

For challenging topics like programming, providing more interactive practice opportunities could help solidify concepts.

02

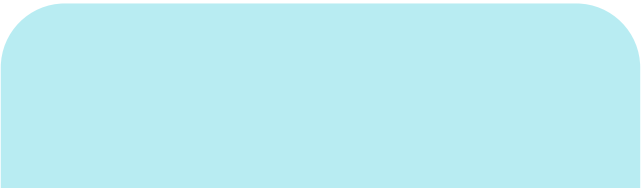
Reference
sheets

Creating quick-reference guides for technical terms and commands would address the "information overload" concerns.

03

Tiered
Learning Paths

A committee member floated the idea of "Geek It Up" alternative assignments for those who want to delve deeper / better accommodate the range of prior knowledge.



Speaking of AI...


(Addressing those pain points)

- Useful in creating reference resources based on existing materials, video transcripts!

MODULE RESOURCES

Click on any resource below to access the materials.


[View Glossary of terms w/ examples!](#)



Lecture Slides

Interactive lecture slides covering computational thinking and Python programming fundamentals.


[View Slides](#)



Python Basics

Essential Python syntax and examples to get you started with programming fundamentals.

[View Guide](#)



Study Guide

Comprehensive study guide to prepare for the Introduction to Programming quiz.

[Study Now](#)

- Useful in processing large volume of written feedback [[click for more](#)]!

5. Sentiment: 4, Before: 3, After: 4
<Feedback>: Nothing is unclear!
Thank you for teaching us :)

6. Sentiment: 4, Before: 4, After: 4
<Feedback>: everything was clearly taught
- still concerned that all will take over the world

ny, of this week's topic remain unclear or confusing for you? Please list any notes o

Nothing is unclear!
Thank you for teaching us :)

What specific aspects, if any, of this week's topic remain unclear or confusing for you? Please list

everything was clearly taught
- still concerned that AI will take over the world



Addressing the need for more online support



Video Guides



- Most critical factor when face-to-face interaction is not possible.
- Greatest contributor to increase in online lab outcomes, decrease in email volume.


Live Support Chat [click for more]




- Piloting this semester to increase online support. GAs online during help desk shifts.
- Why? Long email threads: not a productive way to troubleshoot with a student!


Public Resources

- I'm slowly transitioning to more web-based public resources.
- Instructional materials on file management, programming/CT, and AI and Machine Learning.
- Goal: Continue to build up and organize web-based resources. Share free-to-use versions of past lab documents.
- [About our course + link to public resources](#)
- [Current collection of lab instructions](#)

 **AI Literacy Lab**
Prompt Engineering with the CLEAR Framework

 **Technology:** "Explain machine learning"


Your Stage 1 Prompt:
Give me career advice for a marketing major.

 **Now test your prompt!** Copy your Stage 1

Output from Stage 1:
Google Analytics and Google Ads certification for understanding
Spot Content Marketing or Inbound Marketing certification


File Management 101

Activity: P

 **Let's Design Your Academic Filing System**
Work with a partner to plan your ideal folder structure.

Think About:

- ▶ How many courses are you taking?
- ▶ What types of materials do you have for each course?
- ▶ Do you have group projects?
- ▶ How do you want to organize by time (week, semester, year)?


 **Pro Tip**
Start simple and add complexity as needed. You can always reorganize later!

```
if grade >= 90 and attendance >= 90:
    status = "Dean's List"
elif grade >= 70 and attendance >= 70:
    status = "Passing"
else:
    status = "Needs Improvement"


print(f"Status: {status}")
```

Status: Passing

Evaluating Diane:
Grade: 88
Attendance: 92%
Status: Passing

 **If Statement Challenge**
Write an if statement to check if a score is passing (≥ 70):

Check Answer

 **Correct! The \geq operator checks if score is greater than or equal to 70!**

Continue to Final Challenge

← Previous **01:41** **Next →**

Your Exit Ticket!

Digital Literacy by Design: Your
Exit Ticket!



Feedback Processor

Backup: ChatGPT 😊

References

- García-Pérez, L., García-Garnica, M., & Olmedo-Moreno, E. M. (2021). Skills for a Working Future: How to Bring about Professional Success from the Educational Setting. *Education Sciences*, 11(27), 1-25.
- Huu, P. T. (2023). Impact of employee digital competence on the relationship between digital autonomy and innovative work behavior: A systematic review. *Artificial Intelligence Review*, 56, 14193-14222. <https://doi.org/10.1007/s10462-023-10492-6>
- Jia, W., & Huang, X. (2023). Digital Literacy and vocational education: Essential skills for the modern workforce. *International Journal of Academic Research in Business and Social Sciences*, 13(5). <https://doi.org/10.6007/ijarbss/v13-i5/17080>
- Liao, C. H., Chiang, C.-T., Chen, I.-C., & Parker, K. R. (2022). Exploring the relationship between computational thinking and learning satisfaction for non-STEM college students. *International Journal of Educational Technology in Higher Education*, 19(1), 43. doi:10.1186/s41239-022-00347-5
- Lukitasari, M., Murtafiah, W., Ramdiah, S., Hasan, R., & Sukri, A. (2022). Constructing Digital Literacy Instrument and its Effect on College Students' Learning Outcomes. *International Journal of Instruction*, 15(2), 171-188. <https://doi.org/10.29333/iji.2022.15210a>
- McCarron, E., & Frydenberg, M. (2023). Digitally prepared for success? Technology skills of incoming first-year college students. *Information Systems Education Journal*, 21(3), 70-90. <https://isedj.org/>
- Zan, B. U., Çolaklar, H., Altay, A., & Taşkın, N. (2021). A Study on Digital Literacy Skills of Faculty of Letters Students: Use of University Library. *International Journal of Emerging Technologies in Learning*, 16(1), 152-171.