

Using Blackboard Ally to Create Accessible Content

About your Facilitator.....



Yvette Drager

Senior Education Consultant - APAC



ANTHOLOGY + BLACKBOARD

Your Turn: Introduce Yourself

Please let me know the following about you:

- Name
- Area of expertise at your institution.
- What are you hoping to learn in today's workshop?

Topics to be Covered

- Accessibility and Universal Design
- Accessibility barriers, challenges, and guidelines
- How Ally works and what it does
- Alternative formats of content
- Applying Ally-recommended changes
- Accessibility checking tools
- Resources

How much do you know about accessibility?

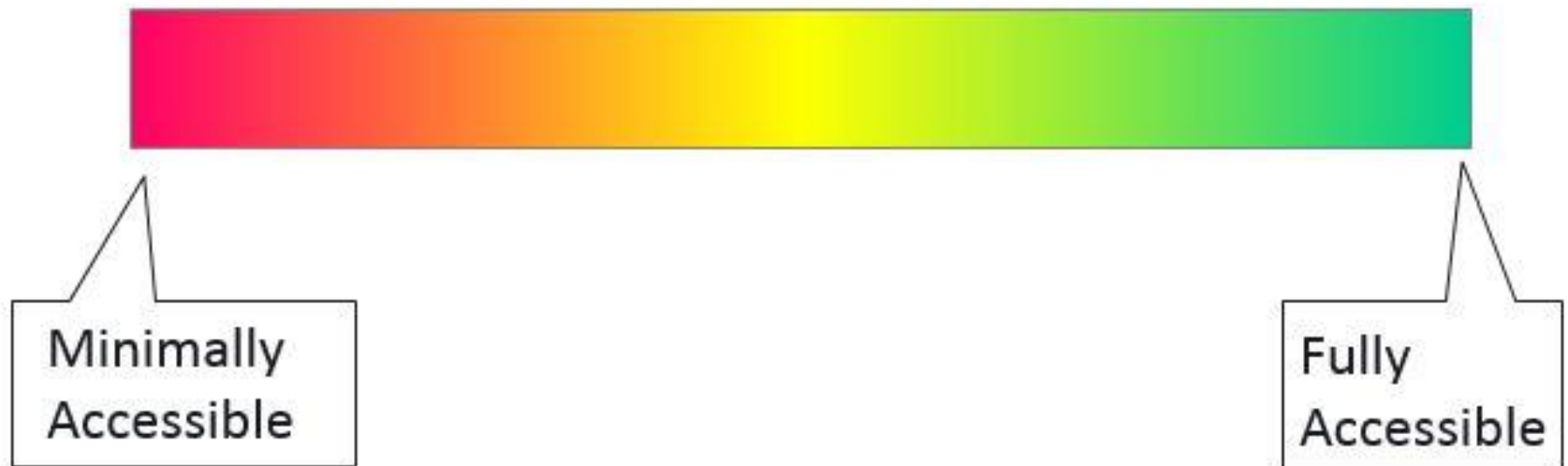
1	2	3
Novice	Competent	Expert
I am new to or inexperienced in creating accessible content	I understand the basics of creating accessible content	I possess a comprehensive knowledge of creating accessible content

Goals of Accessibility of Digital Content

- Provide a universal design that gives better access to all students, including those with disabilities
- Reach students with many different needs
- Use pedagogy that supports all students
- Correspondingly increase quality and usability in content



Accessibility Spectrum



Contextualizing Accessibility

- Accessibility is being able to get in the building.
- Diversity is getting invited to the table.
- Inclusion is having a voice at the table.
- Belonging is having your voice respected at the table.
- Equity is “having the builders of the table understand and make accommodations for the fact that not everyone comes to the table in the same way, and once everyone is sitting around the table, not everyone can respond in the same way.”

Benefits of Universal Design



- Course content is presented in a logical, consistent manner.
- High-contrast color combinations improve readability
- Second language learners benefit from captions on videos
- Technical vocabulary with audio can allow students to see the spelling and hear how to pronounce the vocabulary

Disability and Accommodation



Challenges to Equitable access from a **Reactive Position**

- Hard to ensure timely access to materials
- Dependent on others
- Many students don't disclose

Learners and Accommodations



One File Type Doesn't Fit All



Empower learners with choices that meet their *unique needs*

Learner Preference and Universal Design for Learning

Multiple means of
representation (WHAT)

Multiple means of **expression**
(HOW)

Multiple means of
engagement (WHY)



Support **diverse needs** of 21st
century learners

Challenges for the three personas – Institution



Institution



Instructor



Student

Institutional Challenges



No insight into how institution is doing



Difficult to track and identify what to focus on



Manual remediation workflow



Lawsuits because of legal requirements

Challenges for the three personas – Instructor



Institution



Instructor



Student

Instructor Challenges



Lack of awareness
of what to do



Lack of understanding on
how it can affect students



Lack of guidance on how
to improve accessibility

Challenges for the three personas – Student



Institution



Instructor



Student

Student Challenges



Explicit alternative
format requests



Long delays on
receiving
requested format



Excludes many
students



Closely related to
quality and
usability

Introducing Blackboard Ally

Web Content Accessibility Guidelines(WCAG) 2.1

- Perceivable
- Operable
- Understandable
- Robust

Blackboard Ally

- Provides alternative formats of content
- Provides feedback and guidance to instructors



Blackboard Ally Components

Alternative Formats

- Automatically checks for accessibility issues and generates alternative formats

Instructor Feedback

- Guides instructors on how to improve the accessibility of their course content and alters future behavior

Institutional Report

- Provides detailed data and insights to help further improve course content accessibility at the institution

Machine Learning Algorithms

Full structural and visual analysis to learn semantics of document

Identify headings, heading structure, paragraphs, footers, tables, lists, mathematical formulas, etc.

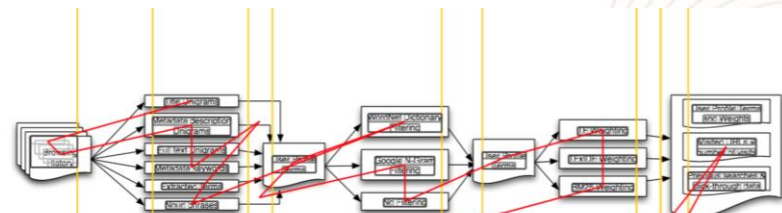


Figure 1: User Profile Generation Steps and Workflow

Table 1: Captured Data Statistics

Metric	Total	Min	Max	Mean
Page Visits	530,334	51	53,459	10,607
Unique Page Visits	218,228	96	26,756	4,365
Google Searches	39,838	0	4,203	797
Bing Searches	186	0	53	4
Yahoo Searches	87	0	29	2
Wikipedia Pages	1,728	0	235	85

Table 2: Extracted terms from the AlterEgo website and the Wikipedia page about Mallorca

AlterEgo	Mallorca
add-ons	majorca
Nicolaas	palma
Matthijs	island
CS111	spanish
Nicolaas Matthijs	balearic
Language Processing	cathedral
Cambridge	Palma de Mallorca
keyword extraction	port

Every time a user leaves a non-secure (non-https) web page, the add-on transmits the user's unique identifier, the page URL, the visit duration, the current date and time, and the length of the source HTML to the server. The server then attempts to fetch the source HTML of this page. This is performed server-side to ensure that only publicly-visible data is used. Once the source HTML is received, the server compares its length to the length received from AlterEgo. If the length difference is smaller than 50 characters, the HTML is accepted and saved along with the other page visit data. Otherwise, we assume the content probably came from a password protected but non-secure site (e.g. Facebook, Hotmail, etc.) and the record is discarded.

Participants for this study were recruited via a website explaining the purpose and consequences to potential users, publicized on various e-mail lists, resulting in 50 participants taking part. Whilst we expect that most of these participants are employed in the IT industry due to the recruitment process, a number of people outside of the IT industry without significant web search experience participated as well. The add-on captured data for three months from March to May 2010. As shown in Table 1, a total of 530,334 page visits (or an average of 10,607 page visits per user) were recorded. 18% of the visits were to unique pages. The add-on also recorded 39,838 Google searches, 186 Bing searches and 87 Yahoo! searches, indicating that our users were strongly biased towards Google as their search engine, hence Google was used as the baseline in our experiments. An average user issued 797 queries over the three months, indicating that at least 7.5% of all non-secure web requests were search related.

3.1.2 Data Extraction

We considered the following summaries of the content viewed by users in building the user profile:

Full Text Unigrams

Title Unigrams

The words inside any <title> tag on the html pages.

Metadata Description Unigrams

The content inside any <meta name="description"> tag.

Metadata Keywords Unigrams

The content inside any <meta name="keywords"> tag.

Extracted Terms

We implemented the term extraction algorithm as presented in [31], running it on the full text of each visited web page. It attempts to summarize the web page's text into a set of important keywords. This algorithm uses the C/N/C method, which uses a combination of linguistic and statistical information to score each term. Term candidates are found using a number of linguistic patterns and are assigned a weight based on the frequency of the term and its subterms. This is supplemented with term re-extraction using the Viterbi algorithm. The outcome of this algorithm run on two sample web pages can be seen in Table 2.

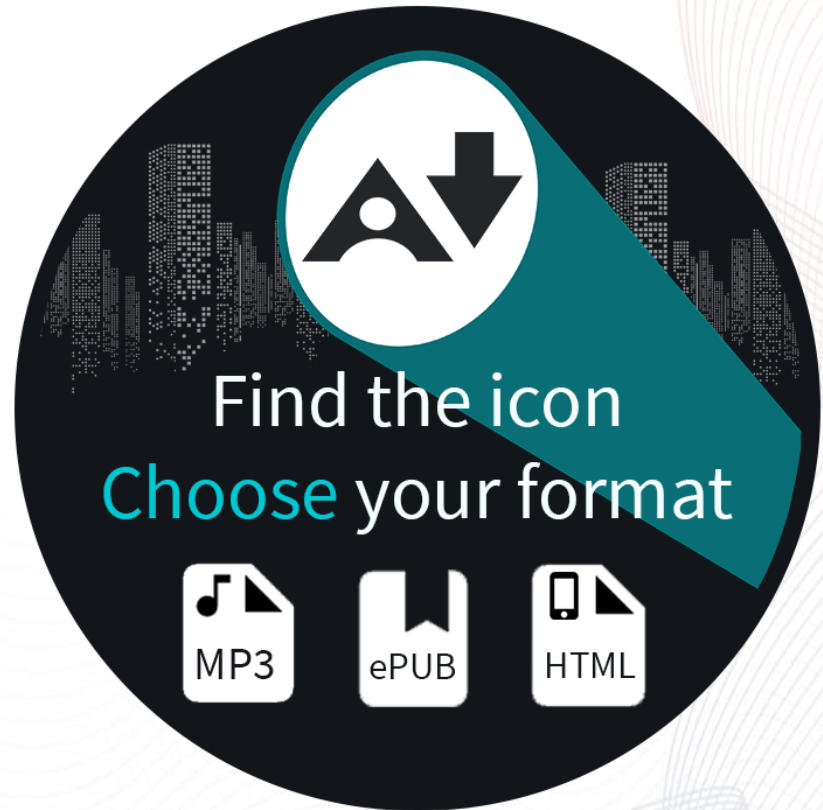
Noun Phrases

Noun phrases were extracted by taking the text from each web page and splitting it into sentences using a sentence splitter from the OpenNLP Tools³. The OpenNLP tokenization script was then run on each sentence. The tokenized sentences were tagged using the Clark & Curran Statistical Language Parser⁴ [3], which assigns a constituent tree to the sentence and part of speech tags to each word. Noun phrases were then extracted from this constituent tree.

3.1.3 Term List Filtering

To reduce the number of noisy terms in our user representation, we also tried filtering terms by removing infrequent words or words not in WordNet. However, neither of these were found to be beneficial. Therefore we do not discuss

Ally Makes the Multiple Formats Automatically



Currently Supported

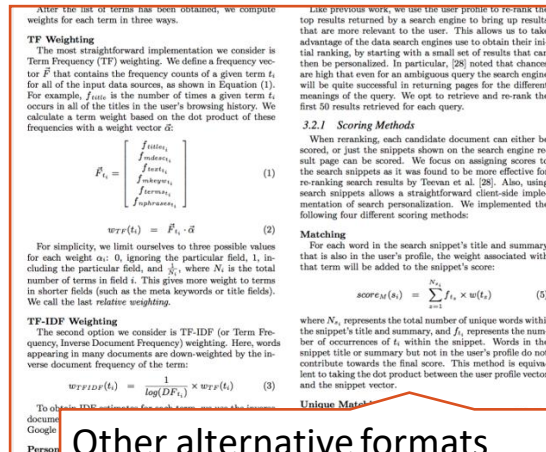
- PDF
- Word and PowerPoint
- Open Office/LibreOffice Files
- Uploaded HTML Files
- Images
- HTML content created in WYSIWYG

Alternative Formats



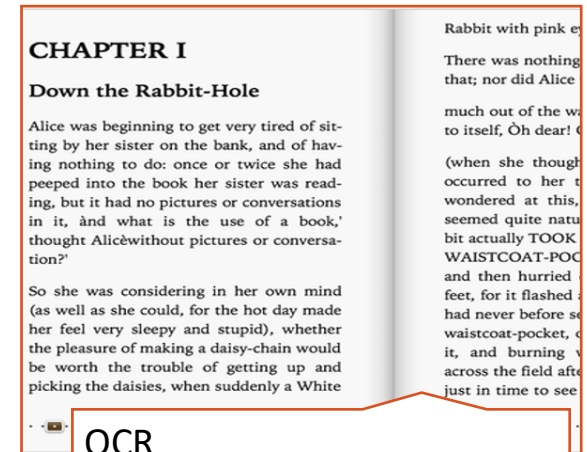
HTML

- High quality semantic HTML version of the content



Other alternative formats

- ePub, audio, electronic braille, etc.



OCR

- Automatically OCR all scanned documents

Ally Makes the Multiple Formats Automatically




Download Alternative Formats





Download alternative formats


×


Selected file:


 Van Gogh.docx


☒  Tagged PDF
Structured PDF for improved use with assistive technology


☐  HTML
For viewing in the browser and on mobile devices


☐  ePub
For reading as an e-book on an iPad and other e-book readers

☐  Electronic braille
BRF version for consumption on electronic braille displays

☐  Audio
MP3 version for listening


☐  BeeLine Reader
Enhanced version for easier and faster on-screen reading

☐  Translated version
A machine translated version of the original document

☐  [Help](#)

By downloading an alternative format, you agree with the [Terms of Use](#)

Cancel

 Download

WHAT IS LITERACY?

It is a piece of folk wisdom that part of what linguists do is define words. In over a decade as a linguist, however, no one, until now, has asked me to define a word. So my first try: what does "literacy" mean? It won't surprise you that we have to define some other words first. So let me begin by giving a technical meaning to an old term which, unfortunately, already has a variety of other meanings. The term is "discourse." I will use the word as a count term ("a discourse," "discourses," "many discourses"), not as a mass term ("discourse," "much discourse"). By "a discourse" I will mean:

a socially accepted association among ways of using language, of thinking, and of acting that can be used to identify oneself as a member of a socially meaningful group or "social network."

Think of a discourse as an "identity kit" which comes complete with the appropriate costume and instructions on how to act and talk so as to take on a particular role that others will recognize. Let me give an example: Being "trained" as a linguist meant that I learned to speak, think, and act like a linguist, and to recognize others when they do so. Now actually matters are not that simple: the larger discourse of linguistics contains many sub-discourses, different socially accepted ways of being a linguist. But the master discourse is not just the sum of its parts, it is something also over and above them. Every act of speaking, writing, and behaving a linguist does as a linguist is meaningful only against the background of the whole social institution of linguistics. And that institution is made up of concrete things like people, books, and buildings; abstract things like bodies of knowledge, values, norms, and beliefs; mixtures of concrete and abstract things like universities, journals, and publishers; as well as a shared history and shared stories. Some other examples of discourses: being an American or a Russian, being a man or a woman, being a member of a certain socio-economic class, being a factory worker or a boardroom executive, being a doctor or a hospital patient, being a teacher, an administrator, or a student, being a member of a sewing circle, a club, a street gang, a lunchtime social gathering, or a regular at a local watering hole.

There are a number of important points that one can make about discourses. None of them, for some reason, are very popular with Americans,

WHAT IS LITERACY?

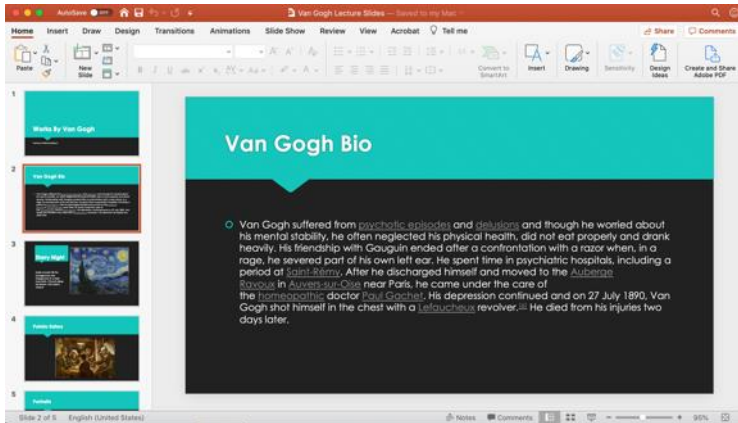
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OCRed PDF



Van Gogh Bio

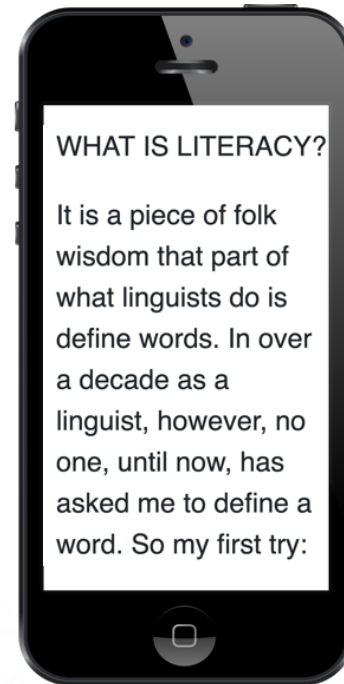
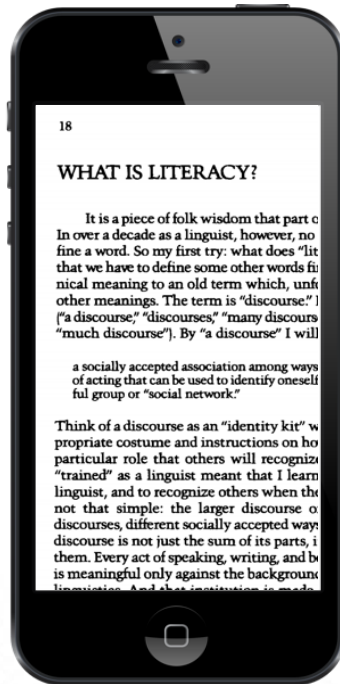
- Van Gogh suffered from psychotic episodes and delusions and though he worried about his mental stability, he often neglected his physical health, did not eat properly and drank heavily. His friendship with Gauguin ended after a confrontation with a razor when, in a rage, he severed part of his own left ear. He spent time in psychiatric hospitals, including a period at Saint-Rémy. After he discharged himself and moved to the Auberge Ravoux in Auxers-sur-Oise near Paris, he came under the care of the homeopathic doctor Paul Gachet. His depression continued and on 27 July 1890, Van Gogh shot himself in the chest with a Lefauchaux revolver.^[1] He died from his injuries two days later.

Starry Night

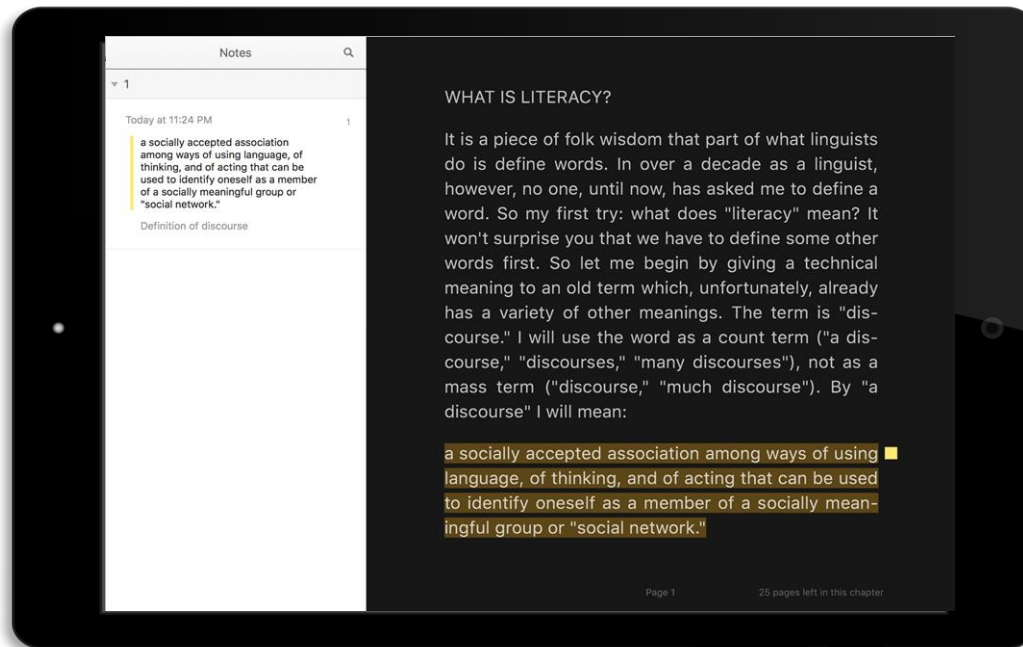
Swirls of paint fill the background, the foreground of a dark mountain. Church steep set below. The style is unique



Tagged PDF



Responsive to Screen Size: HTML



Customizable and Interactive Text ePub



Tactile Reading Experience: Electronic Braille



The screenshot shows the BeeLine Reader interface with the 'Bright' theme selected. The top navigation bar includes five circular icons: 'Bright' (white), 'Dark' (black), 'Blues' (blue), 'Grays' (gray), and 'Night' (dark blue). The main content area has a white background. The text is color-coded: 'Vincent van Gogh' is blue, 'Summary of Van Gogh's life' is blue, 'Vincent van Gogh (30 March 1853 – 29 July 1890)' is red, 'was a Dutch Post-Impressionist painter who is among the most famous and influential figures in the history of Western art. In just over a decade he created about 2,100 artworks, including around 860 oil paintings. They include landscapes, still lifes, portraits and self-portraits, and are characterized by bold colors and dramatic, impulsive and expressive brushwork that contributed to the foundations of modern art. His suicide at 37 followed years of mental illness and poverty.' is blue, 'Van Gogh was unsuccessful during his lifetime, and was considered a madman and a failure. He became famous after his suicide, and exists in the public imagination as the quintessential misunderstood genius,' is red, and 'the artist' is blue. The footer shows 'Powered by Beeline Reader' and 'ness and'.

Bright Dark Blues Grays Night

Vincent van Gogh

Summary of Van Gogh's life

Vincent van Gogh (30 March 1853 – 29 July 1890) was a Dutch Post-Impressionist painter who is among the most famous and influential figures in the history of Western art. In just over a decade he created about 2,100 artworks, including around 860 oil paintings. They include landscapes, still lifes, portraits and self-portraits, and are characterized by bold colors and dramatic, impulsive and expressive brushwork that contributed to the foundations of modern art. His suicide at 37 followed years of mental illness and poverty.

Van Gogh was unsuccessful during his lifetime, and was considered a madman and a failure. He became famous after his suicide, and exists in the public imagination as the quintessential misunderstood genius,

the artist  Powered by Beeline Readerness and



The screenshot shows the BeeLine Reader interface with the 'Night' theme selected. The top navigation bar includes five circular icons: 'Bright' (white), 'Dark' (black), 'Blues' (blue), 'Grays' (gray), and 'Night' (dark blue). The main content area has a dark background. The text is color-coded: 'Vincent van Gogh' is blue, 'Summary of Van Gogh's life' is blue, 'Vincent van Gogh (30 March 1853 – 29 July 1890)' is red, 'was a Dutch Post-Impressionist painter who is among the most famous and influential figures in the history of Western art. In just over a decade he created about 2,100 artworks, including around 860 oil paintings. They include landscapes, still lifes, portraits and self-portraits, and are characterized by bold colors and dramatic, impulsive and expressive brushwork that contributed to the foundations of modern art. His suicide at 37 followed years of mental illness and poverty.' is blue, 'Van Gogh was unsuccessful during his lifetime, and was considered a madman and a failure. He became famous after his suicide, and exists in the public imagination as the quintessential misunderstood genius,' is red, and 'the artist' is blue. The footer shows 'Powered by Beeline Reader' and 'ness and'.

Bright Dark Blues Grays Night

Vincent van Gogh

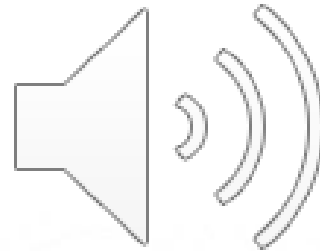
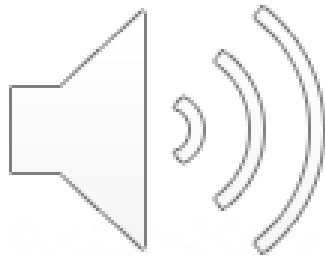
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the artist  Powered by Beeline Readerness and

Multi-Coloured: BeeLine Reader

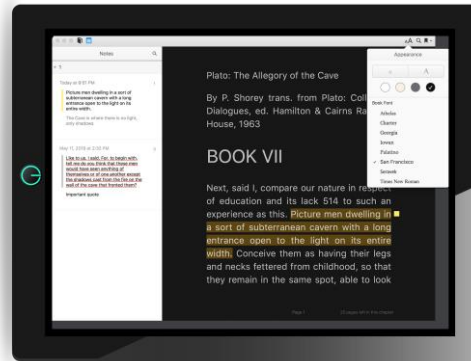


Multi-Sensory: Audio MP3

Improve Study Habits



Skim a Scanned PDF
using OCR Format on a
desktop



Annotate and highlight
an ePub on a tablet



Listen and review an
MP3 on your phone

Student View of Alternative Formats



Welcome to Biology 230 ✓ ⬆



In this course, we will explore how scientists study migration patterns of various insects and animals. Why migrate? The simple fact is resources on Earth fluctuates over time and animals seek food, more hospitable climate, or places to breed. There is incredible diversity in the animal kingdom, and while scientists have discovered certain reasons, much about migration is a mystery.

Alternative formats



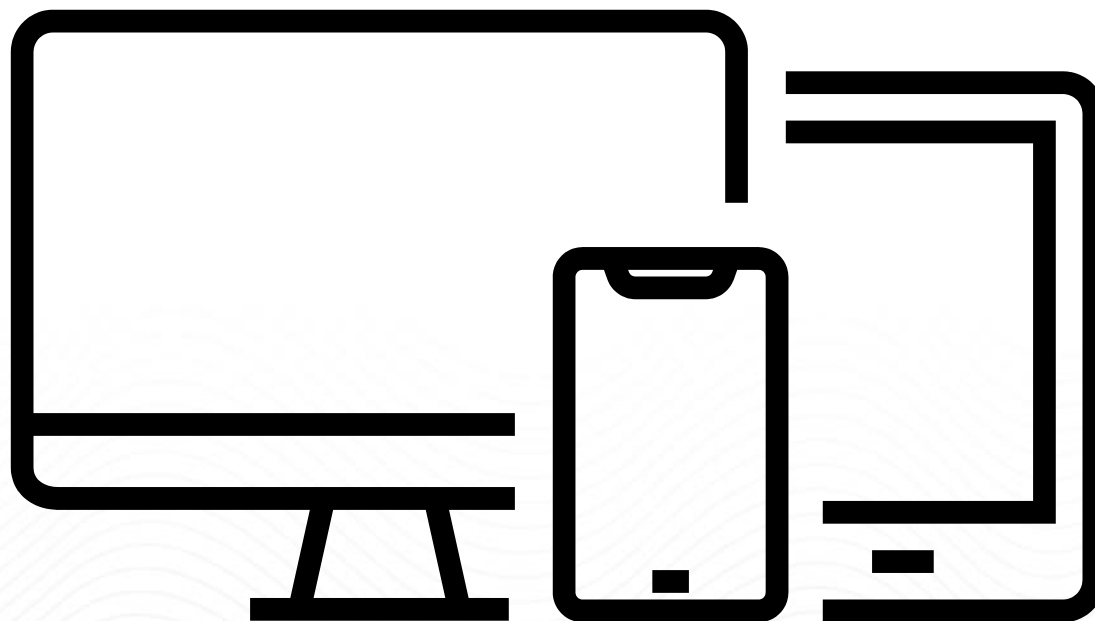
Course Syllabus ✓ ⬆



Course Syllabus PDF ✓ ⬆



Demonstration



Ally Workflow

Add Course
Content



Content run
through automated
accessibility
checklist



Provide Alternative
Formats and
Instructor Feedback

Instructor View of Ally Indicator



In this course, we will explore how scientists study migration patterns of various insects and animals. Why migrate? The or places to breed. There is incredible diversity in the animal kingdom, and while scientists have discovered certain reas





Course Syllabus  




Course Syllabus pdf  


Content Accessibility Indicator



- Based on a 0-100% scale
- Identifies problem areas
- Goal is to create content that receives a green indicator when uploaded



In this course, we will explore how scientists study migration patterns or places to breed. There is incredible diversity in the animal kingdom.

**Course Syllabus** ✓ ⚡

**Course Overview Slide Presentation** ✓ ⚡

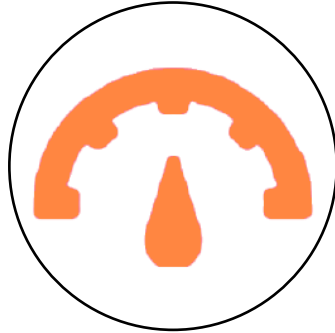
**Syllabus Tool** ✓
Attached File :  **course_syllabus.docx** ✓ ⚡ (163.446 KB)
Please read the syllabus and be prepared for the quiz.

Accessibility Indicator: What Does it Mean?



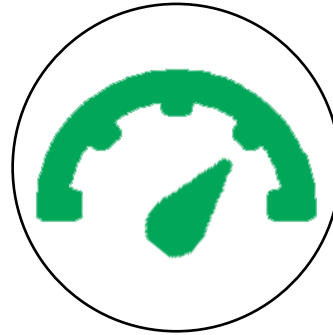
Low/Red

- Needs immediate Attention
- 0%-33%



Medium/Orange

- Needs further attention
- 34%-66%



High/Green

- Doing well, but further improvements might be possible
- 67%-99%



Perfect/Dark Green

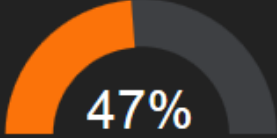
- Ally didn't identify any accessibility issues, but further improvements may still be possible.
- 100%



Instructor Feedback and Guidance

- Provides feedback to instructors about accessibility of their content
- Provides guidance on how to fix accessibility issues
- Aims to generate change in behavior and perceptions over time

Accessibility score for:
course_syllabus




47%

All issues ⓘ

This document does not have headings

What this means

How to add headings



Drop file to upload
or


Browse

Instructor Ally Feedback

Page 1 of 2

1 Image without a description

1 / 1

A detailed illustration of a monarch butterfly with orange and black wings, framed by a red dashed border. A small red box with the text '1 / 1' is positioned above the image.

Biology 230: Insect, Bird, and Animal Migration

General Information

Libby Nadler
Contact: libby.nadler@myschool.edu

Course Description

This course explores the migratory habits of various species, and the contributory factors that influence them. Attention will be given to how migratory patterns are influenced by climate change, and the methodology used by biologists to study them—specifically in the case of *Danaus plexippus*, the monarch butterfly

Course Objectives

After completing this course, students will be able to:
Identify four mammals, birds, or insects that migrate.

Accessibility score for:
course_syllabus(1).docx

26%

All issues ⓘ

This document contains images that are missing a description

What this means

How to add descriptions

Upload a version with image descriptions

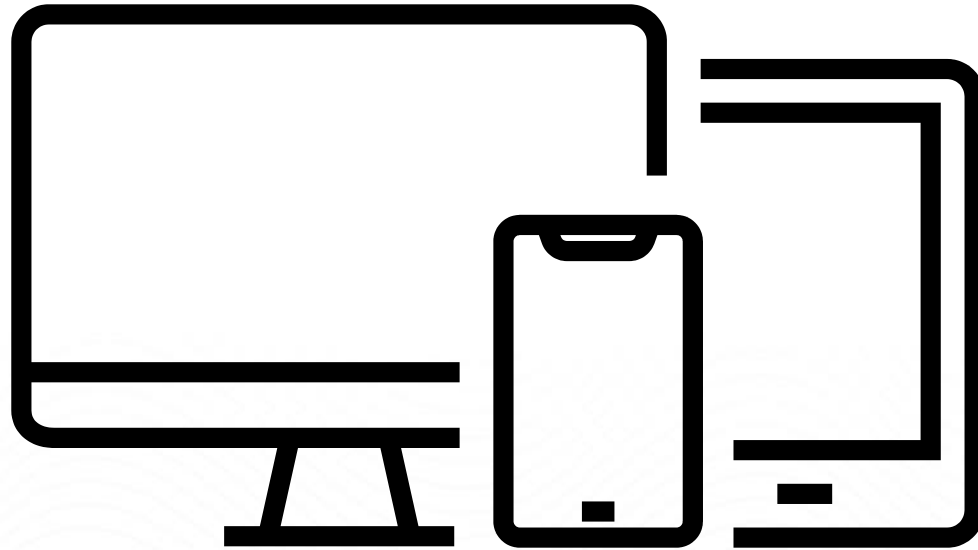
Drop file to upload or

Browse

Instructor Feedback Interface

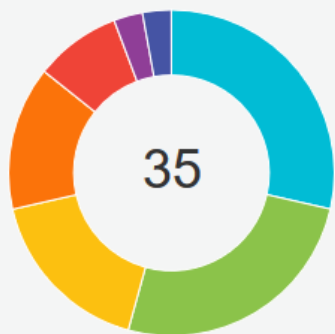
- Previews are available for
 - Images
 - PDF
 - Word Document
 - PowerPoint Document
- Highlights are available for documents containing
 - Images without a description
 - Text with contrast issues
 - Tables without table headings

Ally Instructor Demonstration



Course Accessibility Report

Overview Content



All course content

Item	10
Image	9
Word document	6
PDF document	5
Folder	3
Presentation	1
Link to discussion topic	1

Start



Content with the easiest issues to fix

13

Start



Fix low scoring content

15

Start

Remaining issues

↓ Severity Issue



The document is scanned but not OCR'd

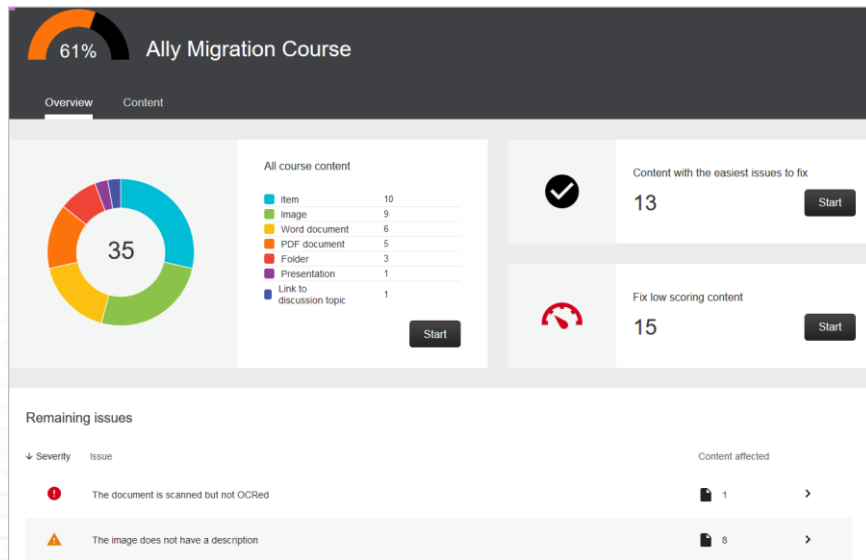
Content affected



1



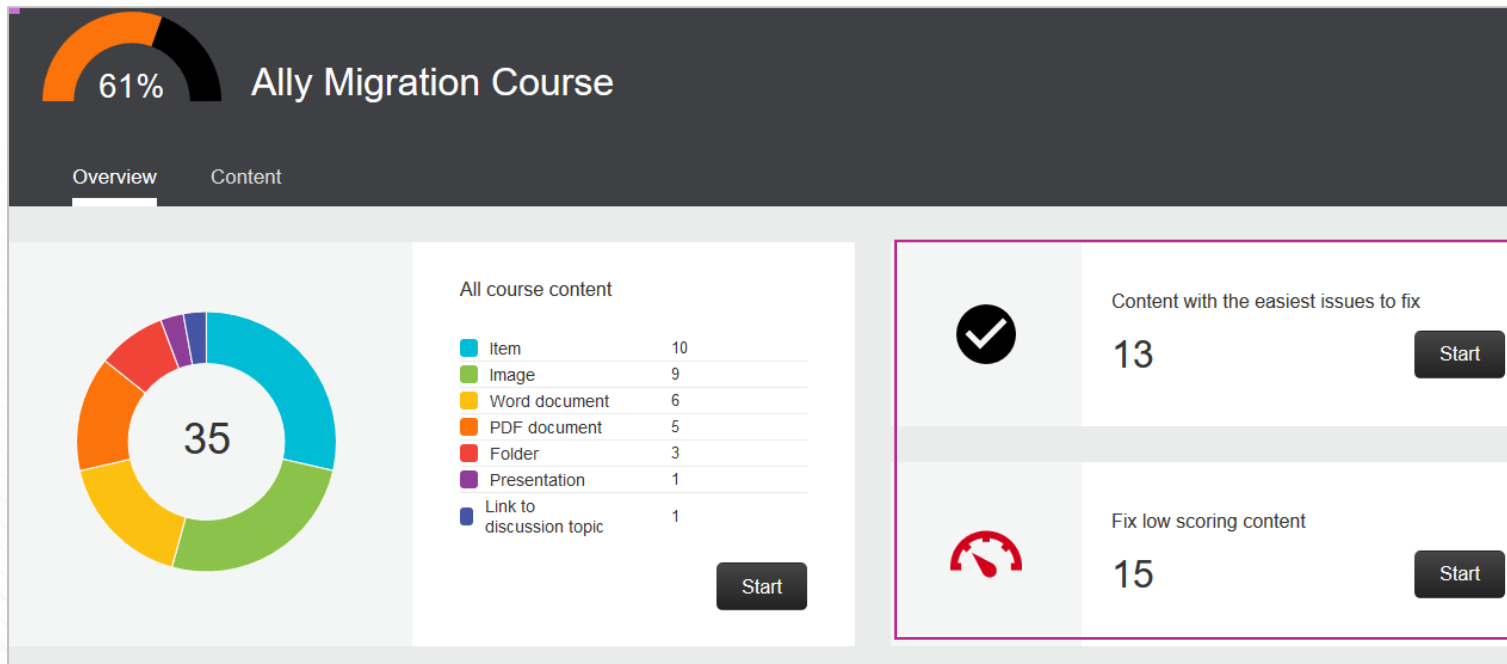
Course Accessibility Report



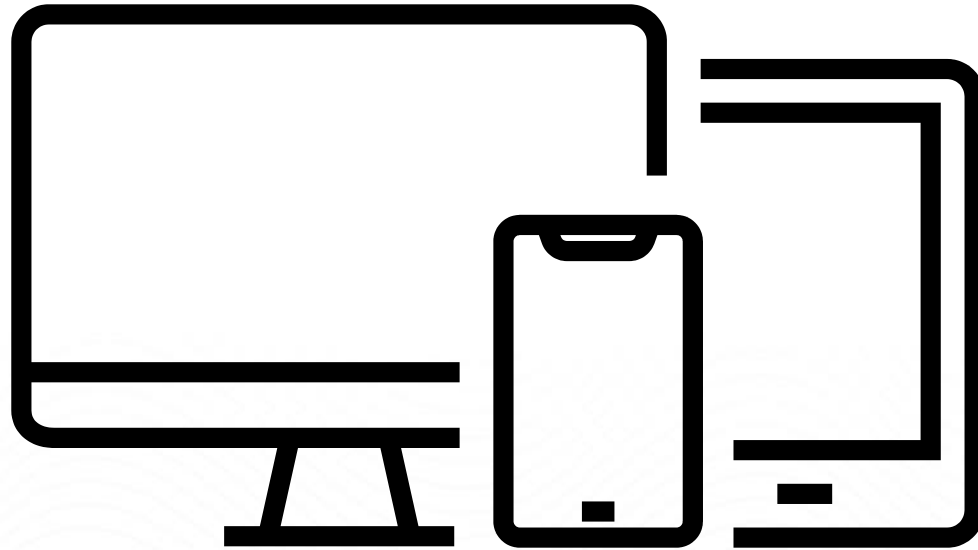
- Identifies overall course accessibility score
- Indicates the distribution of content types
- Provides a list of issues in the course

Course Accessibility Report

- It provides prioritization by identifying
 - Content that's easiest to fix
 - Content with most severe issues



Course Accessibility Report Demonstration

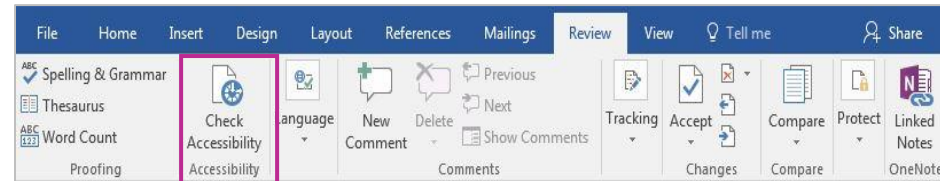


Microsoft Office Accessibility Checker

Accessibility checker is included in Word and PowerPoint

Limited in scope

Identifies some accessibility issues



The screenshot shows the Microsoft Word ribbon with the 'Review' tab selected. The 'Check Accessibility' icon, which is a document with a checkmark and a plus sign, is highlighted with a red rectangle. Other icons in the ribbon include 'Spelling & Grammar', 'Thesaurus', 'Word Count', 'Language', 'New Comment', 'Delete', 'Previous', 'Next', 'Tracking', 'Accept', 'Compare', 'Protect', and 'Linked Notes'.

Biology 230: Insect, Bird, and Animal Migration


General Information
Libby Nadler
Contact: libby.nadler@myschool.edu

Course Description

In this course, we will explore how scientists study migration patterns of various insects and animals. Why migrate? The simple fact is resources on Earth fluctuates over time and animals seek food, more hospitable climate, or places to breed. There is incredible diversity in the animal kingdom, and while scientists have discovered certain reasons, much about migration is a mystery.

Course Objectives

1. Identify four animals, birds, or insects that migrate.
2. Explain how scientists track the Monarch Butterfly as it migrates.



A detailed illustration of a Monarch Butterfly, showing its characteristic orange wings with black veins and white spots along the edges.

Writing for Accessibility

Write Plainly

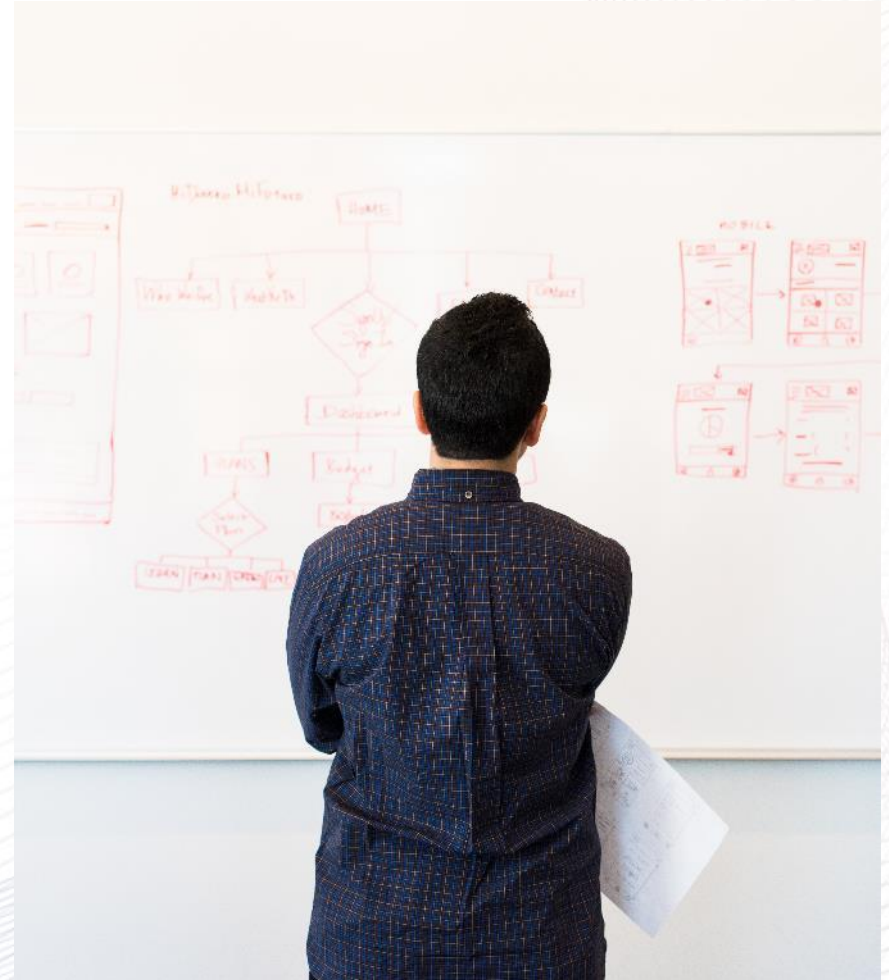
- Keep sentences short
- Use contractions and simple words
- Aim for readability level of grade 8 or lower

Heading structure

- Provide screen reader users with the ability to jump to specific content
- Use styles and formatting options

Emphasize Content

- Screen readers do not identify with font styles
- Screen readers intonate exclamation and question marks
- Use 12-point font or larger



Images and Accessibility

Alternative Descriptions

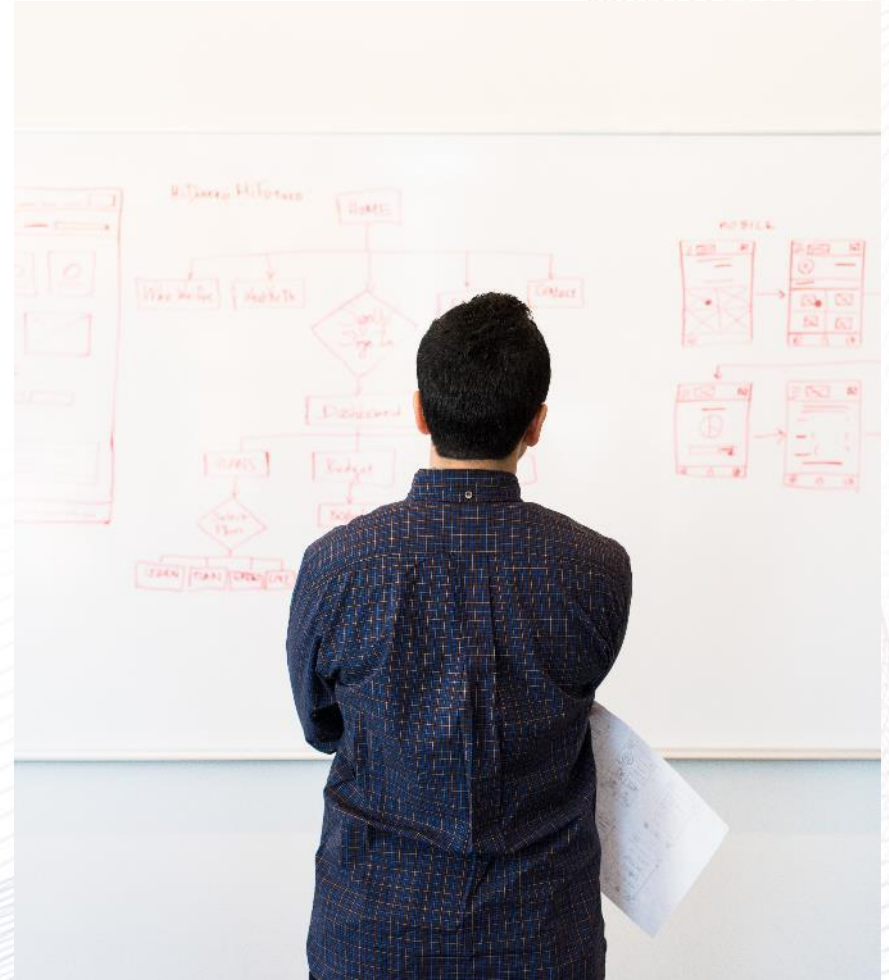
- Add clear, concise, and descriptive text to your images
- Do not use the same text for every image
- If it is decorative, leave the alt text field blank

Infographics

- Write a narrative telling the same story users get from the visual
- Provide a link to view the text alternative

Text in Images

- Text should not be included as part of an image



Accessibility of Content Elements

Links

- Make links descriptive
- Do not use *click here* or web addresses

PowerPoints

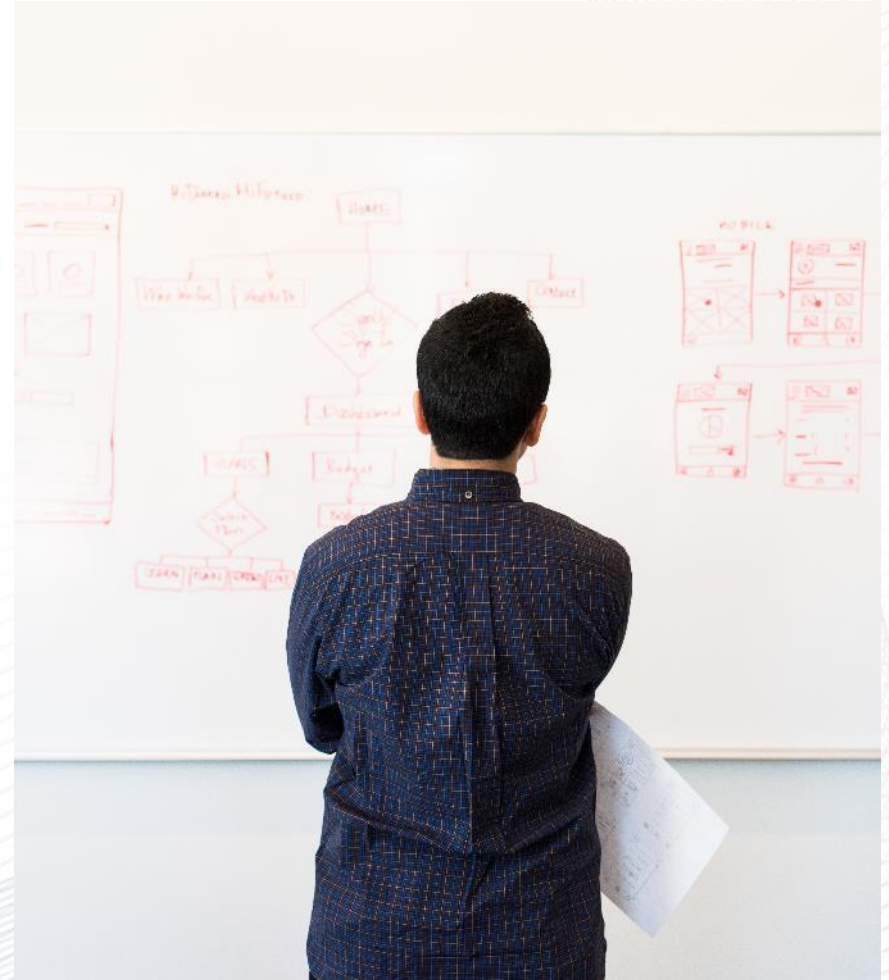
- Use built-in slide templates
- Add alternative descriptions on images

PDFs

- Do not use scanned PDFs
- Ensure that all PDFs are tagged

Lists and Tables

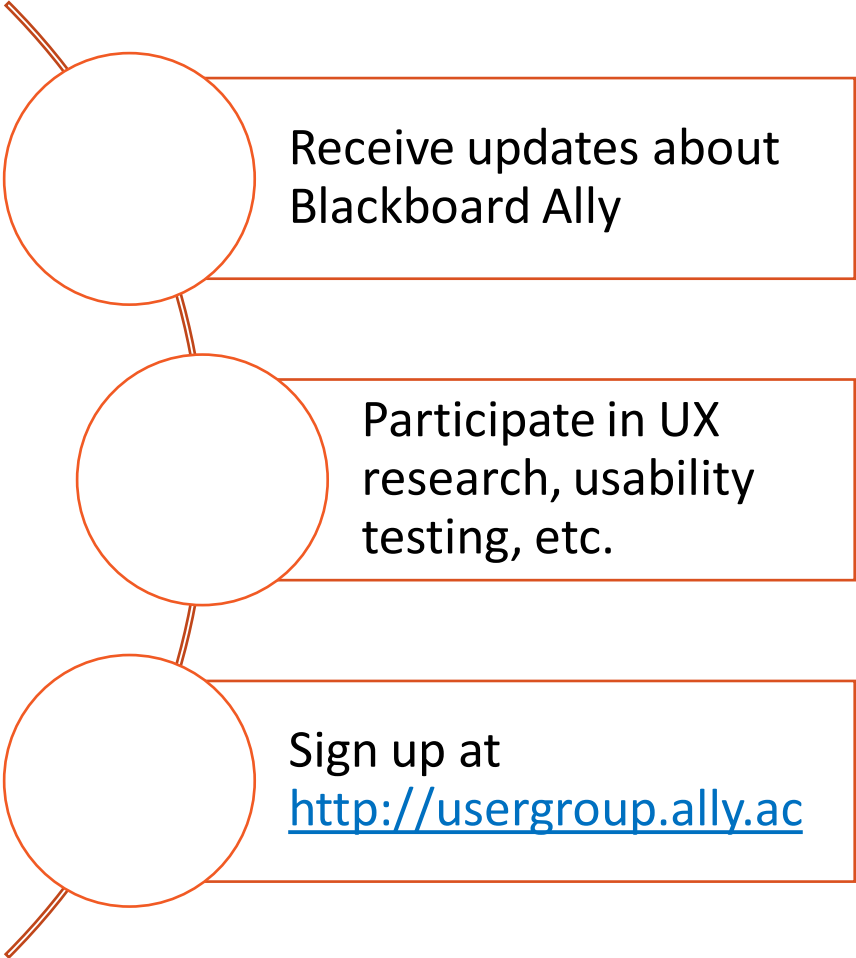
- Use built-in list functionality
- Ensure tables are utilized properly



Useful Resources

- Writing Accessible Content
https://en-us.help.blackboard.com/Accessibility/Write_Accessible_Content
- Accessible images
<http://webaim.org/techniques/images/>
- WebAIM Color Contrast Checker
<http://webaim.org/resources/contrastchecker>
- Designing for color blindness
<http://webaim.org/articles/visual/colorblind>
- Web Accessibility course by Google
<https://www.udacity.com/course/web-accessibility--ud891>
- Creating accessible PDFs
<http://webaim.org/techniques/acrobat/>

Ally User Group and resources



Receive updates about Blackboard Ally

Participate in UX research, usability testing, etc.

Sign up at <http://usergroup.ally.ac>

Blackboard



Blackboard Ally User Group

Blackboard Ally is focused on helping institutions make content more accessible for learners. We frequently engage with and collect feedback from admins, teaching staff and students to help make this tool better.

You can sign up to receive updates about Blackboard Ally, or volunteer to take part in future feedback and research sessions.

How would you like to engage?

- ☐ BE INFORMED: receive updates about Blackboard Ally.
- ☐ PARTICIPATE: provide feedback on designs or take part in usability testing and other research activities.

Your name

Your answer

Your email address

Your answer

Your role

Your answer

Questions



Thank you for attending!

Your experience is important to us!

Please give us your feedback about this session:

https://www.research.net/r/Blackboard_GCX_EduConsTrn

