



# Minnesota eLearning Summit

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Minnesota eLearning Summit

2016

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Jul 27th, 3:00 PM - 4:00 PM

## Designing Accessible Course Materials: Practices You Can Start Implementing Today!

Catherine Artac

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<http://pubs.lib.umn.edu/minnesota-elearning-summit/2016/program/9>

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# Designing Accessible Course Materials: *Practices you can start implementing today!*

MN eLearning Summit  
July 27-28, 2016





# Catherine Artac



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# Session Outcomes

By the end of today's presentation and discussion, you will be able to:

- Recognize the importance of accessibility in terms of Federal Civil Rights Legislation and Universal Design for Learning.
- Identify specific ways to make course materials accessible.
- Locate self-help resources for creating accessible learning materials.



# 11%

- 11% of students in U.S. higher ed have a disability
- Stats gathered as of 2012

[National Center for Education Statistics](https://nces.ed.gov/fastfacts/display.asp?id=60)

<https://nces.ed.gov/fastfacts/display.asp?id=60>



# Accessibility

“Accessibility means a person with a disability is afforded the opportunity

- to acquire the same information.
- engage in the same interactions, and
- enjoy the same services as a person without a disability
- in an equally effective and equally integrated manner
- with substantially equivalent ease of use.

The person with a disability must be able to obtain the information as fully, equally, and independently as a person without a disability.”

US Dept. of Education Resolution Agreement (2013)

[OCR Compliance Review No. 11-11-6002](#)





# Digital Accessibility?





# Why? It's the Law

## Federal Civil Rights Legislation

- Americans with Disabilities Act of 1990
- Sections 504 & 508 of the Rehabilitation Act of 1973
- 21<sup>st</sup> Century Communications and Video Accessibility Act (CVAA)







# Why? Increasing Litigation

US Dept. of Justice - Civil Rights Division

- Harvard & MIT (2015)
- University of Colorado Boulder (2014)
- South Carolina Technical College System (2013)
- Louisiana Tech University (2013)
- University of Montana (2012)
- [Many others...](#)





# Why? It's the Right Thing to Do

- Accommodations
- Universal Design for Learning (UDL)
- Proactive, not reactive
- Accreditation

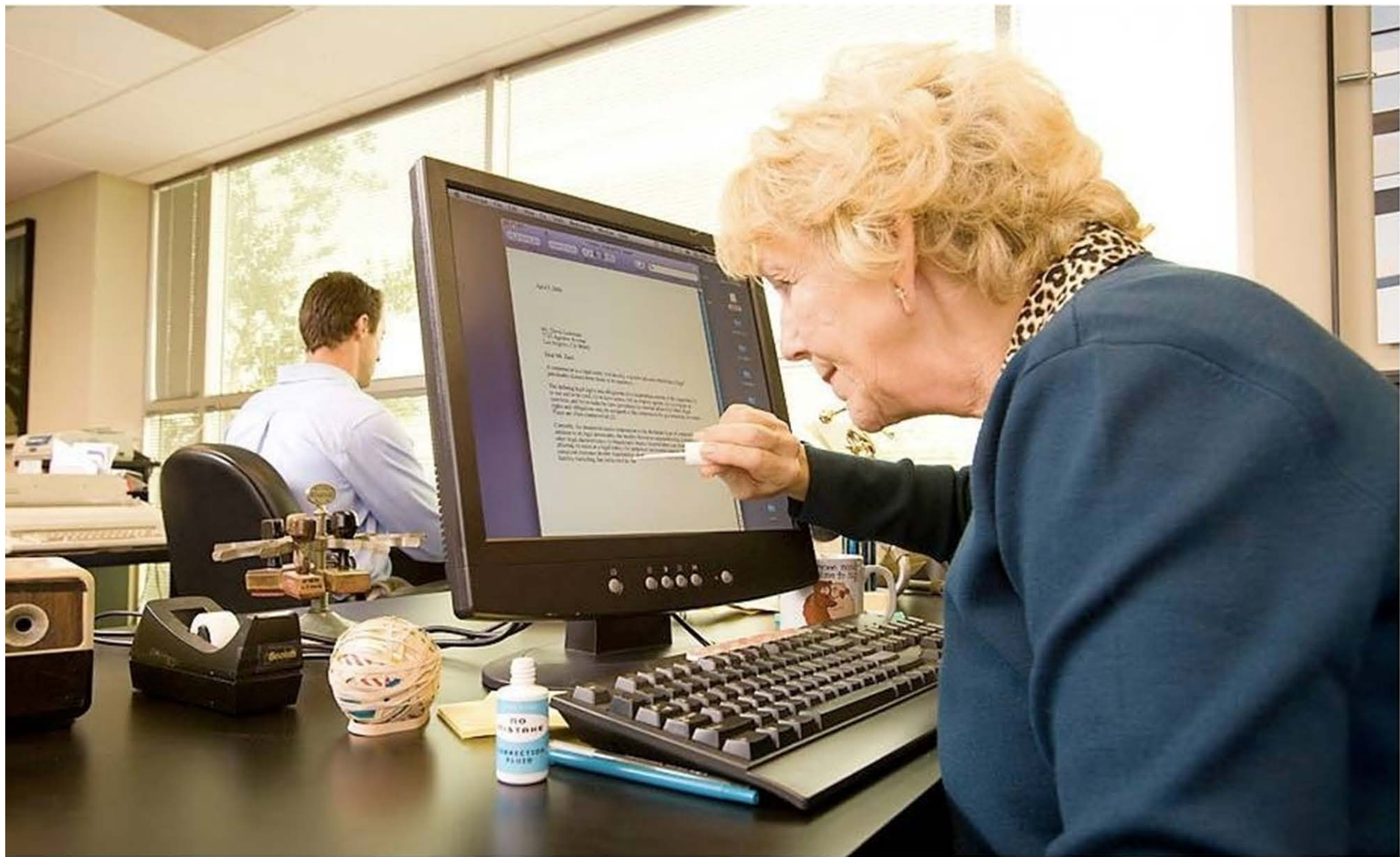




Yeah, right on!

*But where do I start?*







# Document Type





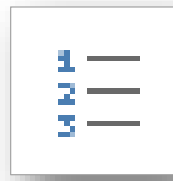
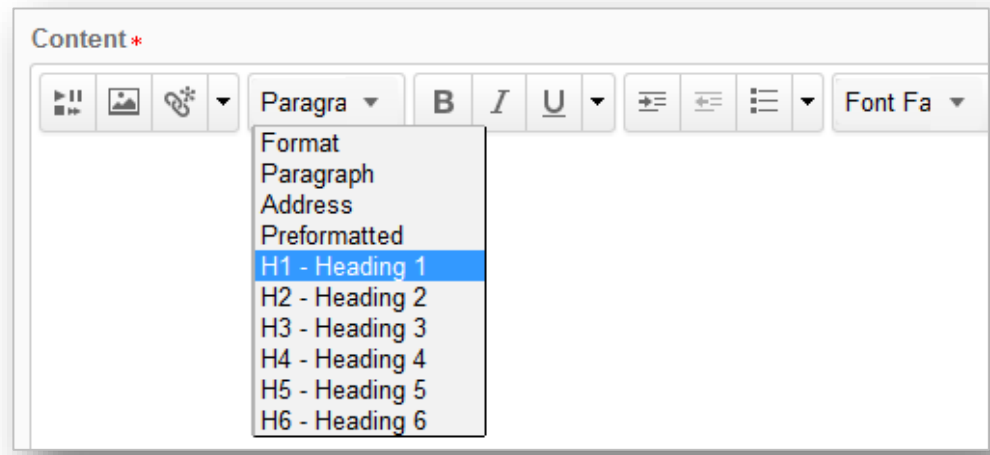


# Structure





# Structure: headings & lists





# Font: Sans Serif

Use a Sans Serif Font for online.

<b>Sans Serif</b>	<b>Serif</b>
Arial	Times New Roman
Calibri	Garamond
Tahoma	Bookman Old Style
Verdana	<i>Lucinda Calligraphy</i>







# Font: Contrast & Color

Can you  
read me?

Can you  
read me  
now?







# Font: Contrast & Color Checker

[webaim.org/resources/contrastchecker/](http://webaim.org/resources/contrastchecker/)

[www.colorzilla.com](http://www.colorzilla.com)

**Color Contrast Checker**  
[Home](#) > [Resources](#) > Color Contrast Checker

Foreground color: #0000ff  [lighten](#) | [darken](#)

Background color: #ffffff  [lighten](#) | [darken](#)

Contrast Ratio: **8.59:1**

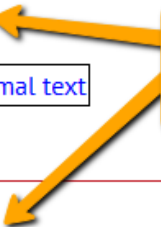
**Normal Text**

WCAG AA: **Pass**  
 WCAG AAA: **Pass**  
 Sample:

**Large Text**

WCAG AA: **Pass**  
 WCAG AAA: **Pass**  
 Sample:

Yea! I passed!!




**ColorZilla**  
Advanced Colorful Goodies

**ColorZilla for Firefox and Chrome**  
Advanced Eyedropper, ColorPicker, Color Analyzer and other colorful goodies for your Firefox and Chrome.






# Font: Color & Emphasis

- Colorblind (*color deficient*) Worldwide
  - 1 in 12 men (8%)
  - 1 in 200 women (.5%)



Normal Vision



Deuteranopia



# Font: Emphasis



You will have 2 attempts for each quiz. Only the **highest** score will be kept.



You will have **2 attempts** for each quiz. Only the **highest** score will be kept.

# Descriptive Links

If someone were reading a list of links, which would you prefer to hear?

[Course Schedules](#)

*...or...*

[https://webproc.mnscu.edu/registration/search/basic.html?campusid=072&\\_ga=1.153158648.1721550958.1412352512](https://webproc.mnscu.edu/registration/search/basic.html?campusid=072&_ga=1.153158648.1721550958.1412352512)



# Descriptive Links...

## *more tips...*

- If the document is to be both read online and printed, include the URL address within parentheses:  
e.g. [Google](http://google.com) (http://google.com).
- If a link opens a PDF document or video, say so and include the document size/video length within the link text:  
e.g. [2015 Annual Report](#) [PDF, 750 KB]  
e.g. [Accountants and Auditors](#) [video, 1:09 mins]





# Images: Alt Text

## Poor Example:

House damaged from Hurricane Patricia.

## Better Example:

Distressed boy standing in ruins that were once his home in wake of Hurricane Patricia.

- Short, but descriptive
- Personal focus, emotion
- Convey meaning



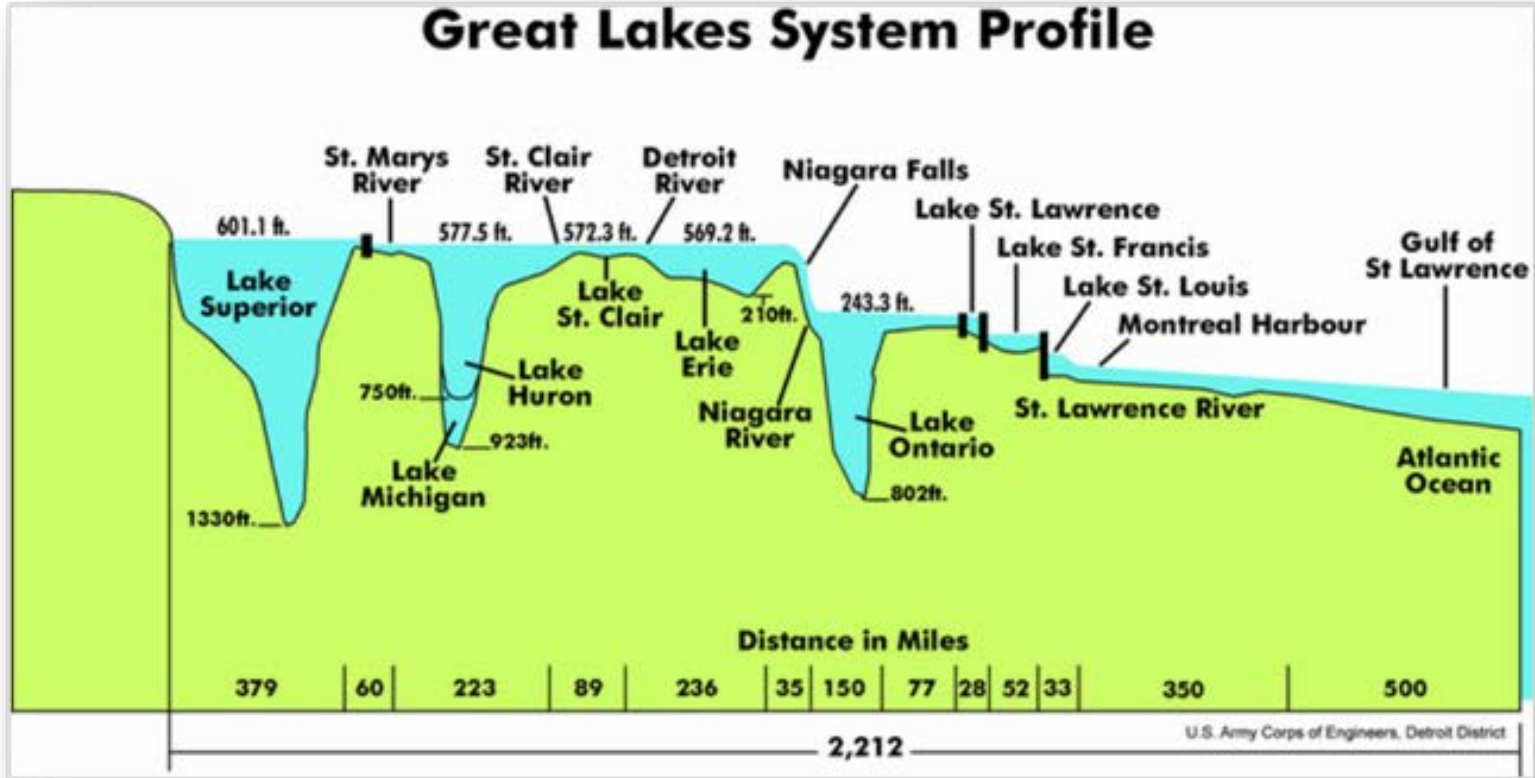
# Images: Description Field

The image shows a 'Format Picture' task pane with several sections: SIZE, POSITION, TEXT BOX, and ALT TEXT. The ALT TEXT section is expanded, showing a 'Title' field and a 'Description' field. A red box highlights the 'Description' field, and a red callout bubble with the text 'Add your ALT text here' points to it. A red arrow also points from a separate image icon to the ALT TEXT section.





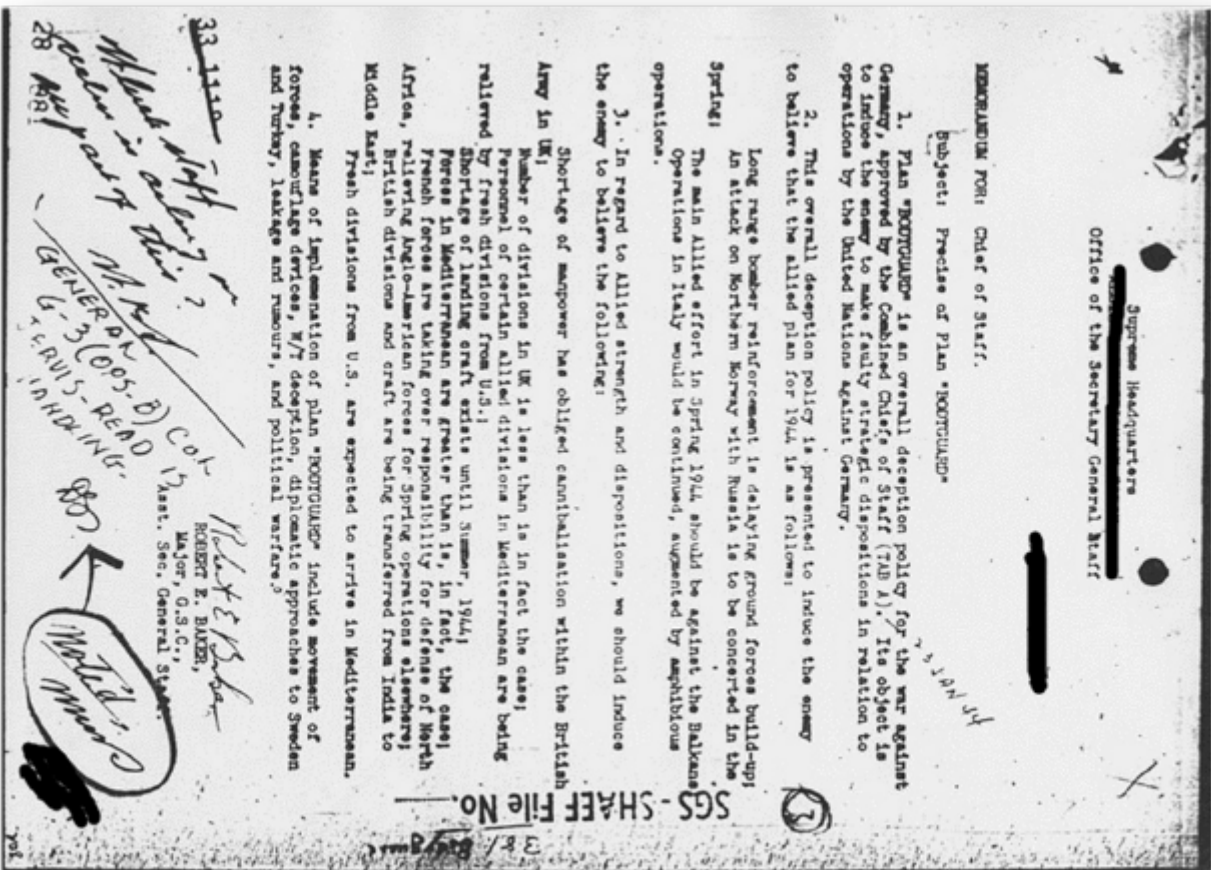
# Images: Complex





# Scanned Documents: Clarity

What could possibly go wrong?



# Scanned Documents: Text or Image?

Accessible (text-based)

Not Accessible (image)

RESEARCH

## Teaching patient safety and human factors in undergraduate nursing curricula in England: a pilot survey

Wayne Robson, Debbie Clark, David Pnnock, Nick White and Bryn Baxendale

**Abstract**  
Patient safety is a key priority for all healthcare systems, and there is growing recognition for the need to educate tomorrow's nurses about the role of human factors in reducing avoidable harm to patients. A pilot survey was sent to 20 schools of nursing in England to explore the teaching of patient safety and human factors. All 20 schools that responded (50% response rate) stated that patient safety was covered in their curricula and was allocated more than 4 hours, all the classes included human factors. Only two respondents indicated their teaching to be multi-professional. As a member of the World Health Organization's multi-professional patient safety curriculum guide was poor. Further, the research confirms that the Institute for Healthcare Improvement provides few online patient safety modules for students and that there is a global network of student patient safety chapters.

**Keywords:** Student nurses • Patient safety • Human factors • World Health Organization • Undergraduate nursing

show that many of these accidents are due to breakdowns in leadership, teamwork, flawed structural processes, poor workplace and equipment design and team workload.

This has resulted in a growing demand for human factors education and training. The majority of this training has been based upon Core Knowledge Management (CKM) including areas from the aviation industry, which focus on mechanical skills (Caldwell, 2013). The authors stress that human factors involve much more than mechanical skills and include ergonomics—focusing on the design of healthcare systems (work environment, equipment and processes) and policies to complement human performance and mitigate errors caused by human fallibility.

In the UK, a national Clinical Human Factors Group was established in 2010. It independently campaigned for a better understanding of human factors and how this can improve safety and productivity in health care. In 2010, the Department of Health (DH) established a Human Factors Reference Group which included an education sub-group. An interim report by the Human Factors Reference Group (DH, 2011–2013) recommended that the Human Factors education sub-group supports the NICE in its response to the recommendations and findings of the Francis Report (Francis, 2013). The group has worked with the Central Medical Council (CMC) and the Nursing and Midwifery

**Background:** In 2013, a National Advisory Group on the Safety of Patients in England (2013), Don Berwick highlights the importance of patient safety education.

**Objectives:** Mastery of quality and patient safety science and practice should be part of the prequal preparation and lifelong education of all health care professionals.

**Approach:** Awareness of patient safety has grown globally in the past decade, with initiatives such as the 5 Million Lives Campaign (Initiative for Healthcare Improvement (IHI), 2010a) in the USA, and the Patient Safety First Campaign (National Patient Safety Agency (NPSA), 2011) and the introduction of 'human factors' into the Safety-Themometer (Patient First Care, 2012) in the UK.

**Methodology:** There are signs indicating that there is still work needed to ensure patients are protected from avoidable harm. This summary of the investigation of avoidable deaths and harms observed at a UK hospital, the Francis Report (Francis, 2013) argues that the failure occurred because of a poor safety culture that accepted poor standards.

**Key messages:** Adequate interventions to reduce harm from medication, falls, pressure ulcers and deterioration, in the past 5 years, there has been a growing recognition of the need to focus on the influence of human factors. Dr Ken Caldwell (Clinical Human Factors Group, 2013) describes human factors as:

'Enhancing clinical practice through an understanding of the effects of equipment, tasks, equipment, processes, culture and organization on human behaviour and cognition, and application of that knowledge in clinical settings.'

Accidents involving human factors are evident in many high-risk industries, and a wide cross-section of hospitals.

Wayne Robson, Dr Debbie Clark, David Pnnock, Nick White and Bryn Baxendale are in the Department of Health, Safety and Environment, Moorhead State University, Moorhead, MN, USA. Correspondence: Wayne Robson, Moorhead State University, Moorhead, MN, USA. Email: wrobson@msu.edu

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354 FIZIOLOGIA SISTEMULUI VASCULAR

Pulsul arterial constă în distensia pereților arteriali din timpul sistolei ventriculare, determinată de creșterea presiunii și diametrului arterei comprimate pe un plan osos. Expansiunea ritmică a arterelor periferice se datorează propagării cu viteză mare a undei vibrațiilor vasculare produse de expulzia sângelui sub presiune din inimă în vasele mari. Spre deosebire de viteza de deplasare a sângelui, care atinge în timpul sistolei ventriculare doar 0,4–0,5 m/s, unda pulsantă arterială se propagă cu viteze de 4–9 m/s. Viteza undei pulsantă depinde de elasticitatea sistemului arterial.

Factorii care determină pulsul arterial în de volumul bătăii al cordului și de complianța (distensibilitatea totală) a arterelor. Cu cât va fi mai crescut volumul sistolic, cu atât cantitatea de sânge propulsată în artere la fiecare bătăie va fi mai mare și, astfel, oscilațiile pulsantă sistolo-diastolice vor fi mai ample. Pe de altă parte, cu cât complianța sistemului arterial va fi mai mare, cu atât presiunea pulsantă determinată de volumul de sânge pompat în artere va fi mai mică. În ultimă instanță, orice alterare circulatorie care afectează unul din acești doi factori (volum sistolic și complianța arterială) modifică și pulsul arterial sau presiunea pulsantă (după autorii anglo-saxoni).

Dintre factorii modificatori ai volumului sistolic fac parte caracterul ejecției din cord, creșterea ritmului cardiac, scăderea rezistenței periferice și variațiile întoarcerii venoase. Ejectia rapidă, de exemplu, va determina o presiune a pulsului mai mare decât ejectia prelungită. La rîmarea constantă a sîngelui din artere în vene, va determina, ca și creșterea întoarcerii venoase, o amplificare a presiunii pulsului.

În contrast cu multitudinea factorilor care pot modifica volumul sistolic, complianța vasculară este afectată numai în cazurile de alterare a distensibilității pereților arteriali la vîrstnici și aterosclerotici în general.

Caracterile (calitățile) pulsului arterial pot fi apreciate palpatoriu sau înregistrate cu ajutorul sfigmografilor de diverse tipuri (pneumatico, manometric, transductoare electronice, fotoelectrice etc.).

Prin simpla palparea a undei pulsantă de la nivelul unei artere superficiale se pot obține o serie de informații asupra stării normale sau patologice a sistemului cardio-vascular, în funcție de frecvență, ritm, amplitudină, duritate și întoarcerate.

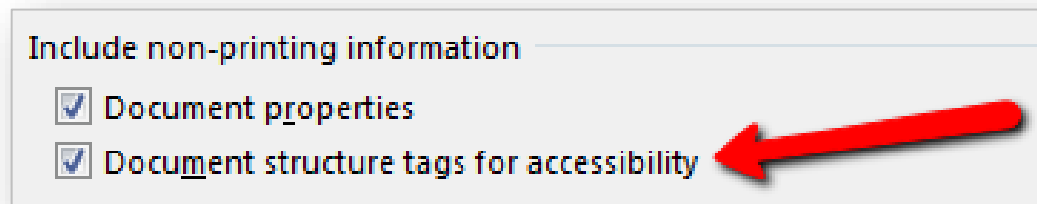
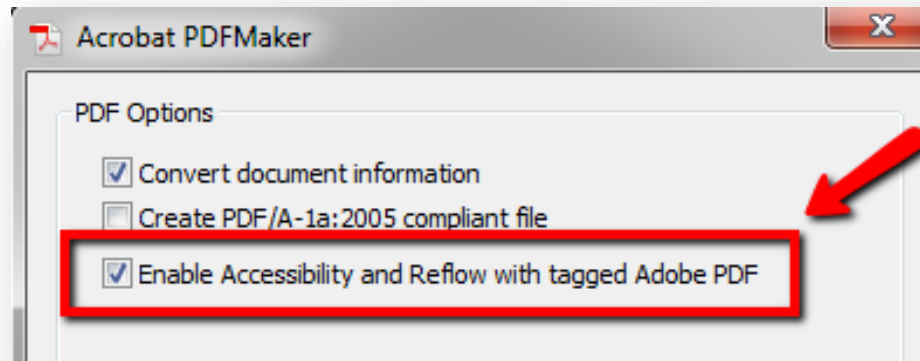
Prevenția și ritmul regulat sau neregulat dau indicații asupra activității cardiace. Amplitudinea și duritatea, pe de altă parte, sînt direct proporționale atât cu forța de contracție a miocardului și ejectia sîngelui din cord, cât și cu elasticitatea vasculare. Persoanele cu tonus vascular crescut, ca și cele aterosclerotice, prezintă pulsul mai amplu și mai dur. Vasoconstricțiunea sezonieră se reflectă, de asemenea, asupra amplitudinii pulsului arterial, dînd pulsul de iarnă sau de vară. La rândul său, intensitatea depinde mai mult de componenta vasculară decât de cea car-



# PDFs

Start with an accessible document.

Enable accessibility settings.





# Tables

<b>f 16 (lightmeter) Exposure</b>	<b>f 135 (Holga 120 WPC) exposure</b>	
set to ISO 100	for most Fuji, Kodak films with ISO 100	For most Ilford films with ISO 100
1/2000 secs	1/30	1/30
1/1000 secs	1/15	1/15
1/500 secs	1/8	1/8
1/250 secs	1/4	1/4
1/60 secs	1 s	3 s
1/30 secs	3 s	6 s





# Tables... DOs and DON'Ts

<b>f 16 (lightmeter) Exposure</b>	<b>f 135 (Holga 120 WPC) exposure</b>	<b>f 135 (Holga 120 WPC) exposure</b>
set to ISO 100	for most Fuji, Kodak films with ISO 100	For most Ilford films with ISO 100
1/2000 secs	1/30	1/30
1/1000 secs	1/15	1/15
1/500 secs	1/8	1/8
1/250 secs	1/4	1/4
1/60 secs	1 s	3 s
1/30 secs	3 s	6 s

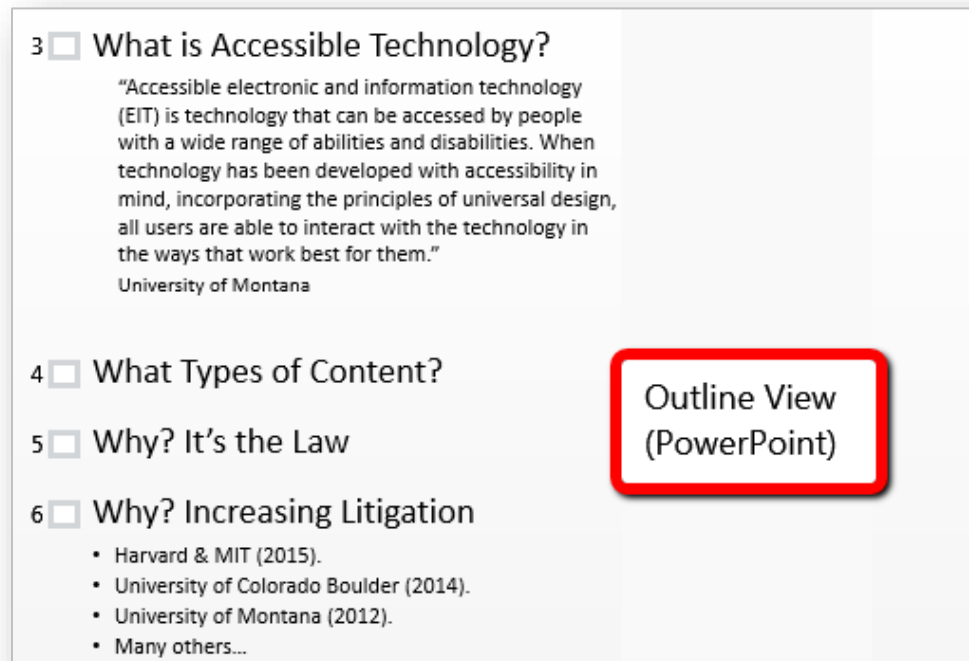
- Designate column and/or row headers.
- Repeat header rows (Word).
- Add ALT text.
- Do not merge or split table cells.



# Presentations: Content Considerations

Use a unique title for each slide.

Verify all content appears in “Outline View.”



3  What is Accessible Technology?  
“Accessible electronic and information technology (EIT) is technology that can be accessed by people with a wide range of abilities and disabilities. When technology has been developed with accessibility in mind, incorporating the principles of universal design, all users are able to interact with the technology in the ways that work best for them.”  
University of Montana

4  What Types of Content?

5  Why? It’s the Law

6  Why? Increasing Litigation

- Harvard & MIT (2015).
- University of Colorado Boulder (2014).
- University of Montana (2012).
- Many others...

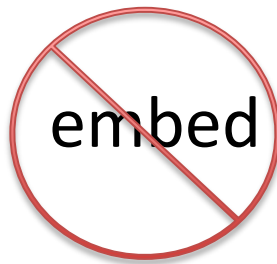
Outline View  
(PowerPoint)





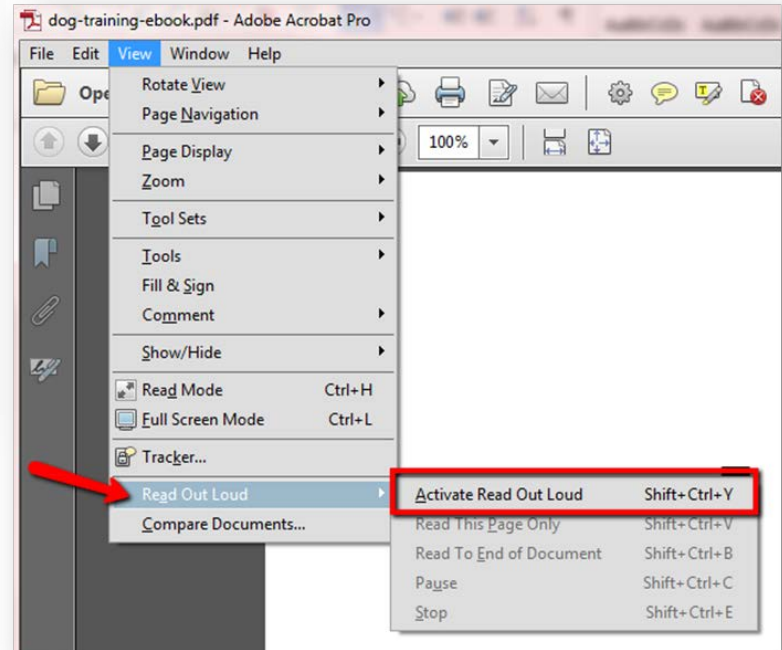
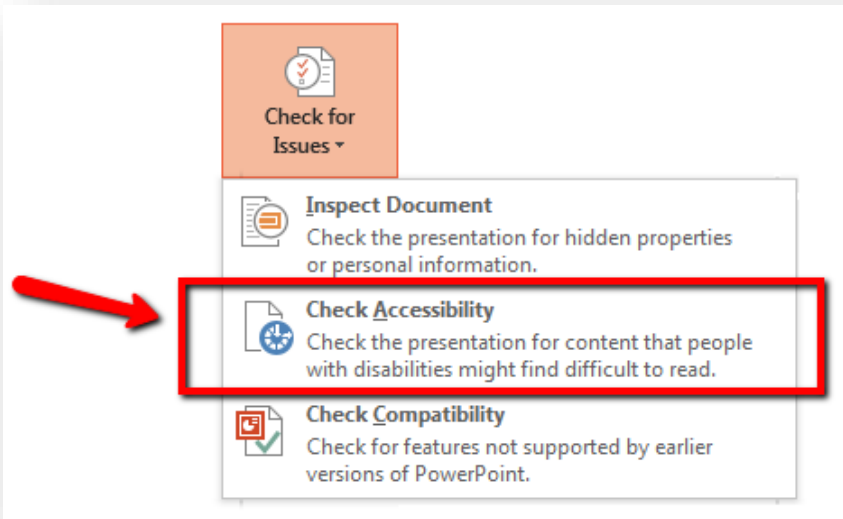
# Presentations: Audio & Visual Additions

- ALT Text
- Speaker Notes: link to media & transcript
- Link OUT to media





# Accessibility Checkers



# Multimedia

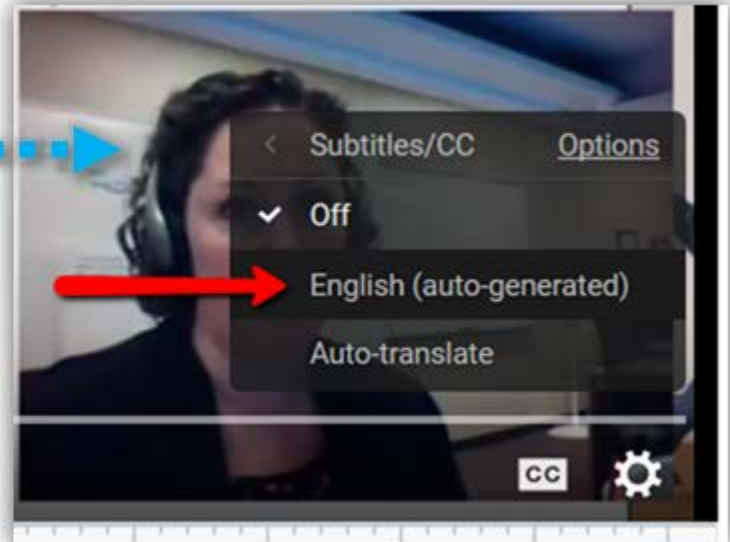
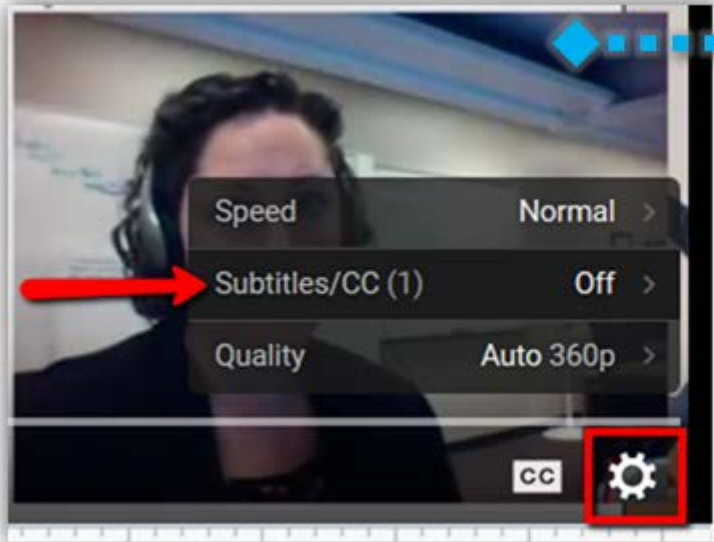




# Multimedia: Transcripts & Captions



classroom management , cc





# Self Help Resources

- [Portland Community College](http://www.pcc.edu/resources/instructional-support/access/)  
<http://www.pcc.edu/resources/instructional-support/access/>
- [U of M Accessibility](http://accessibility.umn.edu/)  
<http://accessibility.umn.edu/>
- [WebAim](http://webaim.org/)  
<http://webaim.org/>  
<http://webaim.org/techniques/word/>
- [National Center on UDL](http://www.udlcenter.org/)  
<http://www.udlcenter.org/>
- [UDL Learning Module](http://fltpsid.info/UDLModule.php)  
<http://fltpsid.info/UDLModule.php>





# Questions





# Resources

[Minnesota STAR Program](http://mn.gov/admin/star/accessibility): <http://mn.gov/admin/star/accessibility>

[Minnesota Learning Commons - Web Accessibility Project](https://mnlearningcommons.us/app/custom/project/WebAccessibility):

<https://mnlearningcommons.us/app/custom/project/WebAccessibility>

[MN Learning Commons - Accessibility Resources](http://www.normandale.edu/onlineeducation/mnlcaccess2014/) (Web Accessibility Site):

<http://www.normandale.edu/onlineeducation/mnlcaccess2014/>

[W3C - Web Accessibility Initiative](http://www.w3.org/WAI/gettingstarted/Overview.html):

<http://www.w3.org/WAI/gettingstarted/Overview.html>

[DO IT \(University of Washington, Seattle\)](http://www.washington.edu/doit/):

<http://www.washington.edu/doit/>

[The National Center on Disability and Access to Education \(NCDAE\) - Cheatsheets](http://ncdae.org/resources/cheatsheets/): <http://ncdae.org/resources/cheatsheets/>

[AHEAD \(Association on Higher Education and Disability\) - Universal Design Resources](http://www.ahead.org/resources/universal-design/resources):

<http://www.ahead.org/resources/universal-design/resources>

[Universal Design in Higher Education](http://www.washington.edu/doit/universal-design-higher-education-promising-practices), by Sheryl E. Burgstahler:

<http://www.washington.edu/doit/universal-design-higher-education-promising-practices>

[ACT Center \(University of Missouri\)](http://actcenter.missouri.edu/accessibility/documents.html):

<http://actcenter.missouri.edu/accessibility/documents.html>

[Accessibility site \(University of Minnesota\)](http://accessibility.umn.edu/home.html):

<http://accessibility.umn.edu/home.html>

[Faculty Course Preparation Guide \(University of Montana\)](http://www.umt.edu/accessibility/getstarted/faculty.php):

<http://www.umt.edu/accessibility/getstarted/faculty.php>

[Accessibility site \(University of Montana\)](https://www.umt.edu/accessibility/):

<https://www.umt.edu/accessibility/>

[Creating Accessible Documents \(University of Montana\)](http://www.umt.edu/accessibility/getstarted/documents/default.php):

<http://www.umt.edu/accessibility/getstarted/documents/default.php>

[Web Accessibility Guidelines handbook \(Portland Community College\)](http://www.pcc.edu/about/accessibility/):

<http://www.pcc.edu/about/accessibility/>

[Accessibility for Online Course Content \(Portland Community College\)](http://www.pcc.edu/resources/instructional-support/access/):

<http://www.pcc.edu/resources/instructional-support/access/>

[Web Accessibility MOOC for Online Educators](https://opencourses.desire2learn.com/cat/) (co-hosted by D2L and Portland Community College):

<https://opencourses.desire2learn.com/cat/>

[Creating Accessible Microsoft Office Documents](http://www.lynda.com/Excel-tutorials/Creating-Accessible-Microsoft-Office-Documents/186696-2.html):

<http://www.lynda.com/Excel-tutorials/Creating-Accessible-Microsoft-Office-Documents/186696-2.html>

[Creating Accessible PDFs](http://www.lynda.com/Acrobat-tutorials/Creating-Accessible-PDFs/147579-2.html): <http://www.lynda.com/Acrobat-tutorials/Creating-Accessible-PDFs/147579-2.html>

[Web Accessibility Principles](http://www.lynda.com/Dreamweaver-tutorials/web-accessibility-principles/448-2.html): <http://www.lynda.com/Dreamweaver-tutorials/web-accessibility-principles/448-2.html>

[Web Accessibility Trainings \(Portland Community College\)](http://www.pcc.edu/resources/instructional-support/access/trainings.html):

<http://www.pcc.edu/resources/instructional-support/access/trainings.html>

[Web Accessibility Trainings \(Portland Community College\)](http://www.pcc.edu/resources/instructional-support/access/trainings.html):

<http://www.pcc.edu/resources/instructional-support/access/trainings.html>

[Introduction to Screen Readers](https://www.youtube.com/watch?v=o_mvO6EQ0tM):

[https://www.youtube.com/watch?v=o\\_mvO6EQ0tM](https://www.youtube.com/watch?v=o_mvO6EQ0tM)







# Acknowledgments

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- Images:
  - Closed Caption symbol: [Wikimedia Commons](#)
  - Do the Right Thing: [commons.wikimedia.org](https://commons.wikimedia.org)
  - The Law: [smlp.co.uk](http://smlp.co.uk) ([fotopedia.com](http://fotopedia.com))
  - Gavel: [Chris Potter \(Flickr: 3D Judges Gavel\)](#) [CC BY 2.0 via [Wikimedia Commons](#)]
  - Confused man: <http://bkonsulting.org/training/img/boy.png>
  - Whiteout: <http://static0.thethingsimages.com/wp-content/uploads/2016/05/whiteout.jpg>
  - PDF: [commons.Wikipedia.org](https://commons.Wikipedia.org)
  - HTML doc: [commons.Wikipedia.org](https://commons.Wikipedia.org)
  - Word doc: [commons.Wikipedia.org](https://commons.Wikipedia.org)
  - PPT: [commons.Wikipedia.org](https://commons.Wikipedia.org)
  - House of cards: [pixabay.com](https://pixabay.com)
  - Pens: Normal Vision vs. Deuteranopia: <http://www.colourblindawareness.org/colour-blindness/>
  - Great Lakes graph: [US Army Corps of Engineers, Detroit District](#), licensed under Public Domain via [Wikimedia Commons](#)
  - Bad example (scanned document): [commons.wikimedia.org](https://commons.wikimedia.org)
  - Film: [commons.Wikipedia.org](https://commons.Wikipedia.org)
  - Elephant: [StockSnap.io](https://stocksnap.io), CC0 Public Domain
  - Questions: geralt, [Pixabay](https://pixabay.com). Creative Commons license: Public Domain

