

# EDSE/EDIT 526: Web Accessibility and Design

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## Course Information

Semester: Spring 2006

Location: Commerce I, Room 100

Day: Monday

Time: 7:20-10:00pm

Credit hours: 3.0

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## Instructor

Paul Bohman

[javascript:main.compose\('new','t=pbohman@gmu.edu'\)](mailto:pbohman@gmu.edu)

703-930-8500

Office: TBD

Office hours: TBD

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## Course Description

Official Description:

This 3-credit course will enable students to use Macromedia Dreamweaver, basic HTML coding, and other Web development tools to design and develop a comprehensive website in accordance with universal Web design standards and Web Accessibility Guidelines as defined in Section 508 of the Rehabilitation Act. Students will be actively involved in experiencing the obstacles people with disabilities face when accessing the Web and will learn how to use Web development tools to design a website that avoids those obstacles by applying the principles of universal web design and Web Accessibility Guidelines.

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## Nature of Course Delivery

Most of the course will be taught in the classroom. Some content may be taught through synchronous and/or asynchronous online activities, as directed by the instructor.

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## Student Outcomes

This course is designed to enable students to:

1. Evaluate the accessibility of existing web content by:
  - o Defining and explaining the major issues and principles related to web accessibility and user adaptability

- Describing the current laws and standards concerning web accessibility.
  - Judging the compliance of existing web content with accessibility guidelines using a combination of checklists, tools, and accessibility knowledge.
2. Create web content that is accessible to a broad range of users, including people with disabilities by:
- Creating basic web content, structured in XHTML
  - Styling XHTML-based content using basic CSS
  - Developing a multi-featured website that incorporates principles of web accessibility and user adaptability—in accordance with the Section 508 guidelines at a minimum—using a combination of a WYSIWIG authoring tool (such as Macromedia Dreamweaver) and text-based XHTML markup.

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## Professional/Technical Standards Taught

This course teaches students to create standards-compliant web content using:

- XHTML (strict)
- CSS
- Section 508 of the Rehabilitation Act (the web accessibility standards)
- WCAG 1.0
- WCAG 2.0 (at the time this syllabus was written, the document was still in draft form)

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## Readings

- **REQUIRED:**
  1. *The WebAIM Guide to Web Accessibility—Complete Web Accessibility Suite* (CD-ROM), which must be purchased online <http://www.webaim.org/products/training/>.

**Students will receive a discount code from the instructor** to reduce the price.

2. Additional web-based resources will be provided by the instructor
- **Optional but Recommended** (this means that these are great resources for students who want to further investigate the topics of the class, but there will be no required readings from these books):
    1. *Designing with Web Standards*, by Jeffry Zeldman, ISBN: 0735712018
    2. *Don't Make Me Think*, by Steve Krug, ISBN: 032134475

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## Software

Note: All of the required software will be available in the classroom computer lab. With this in mind, students who use the lab may decide not to purchase or download any software to their personal computers. However, students will probably need to use the software out of class in order to complete class projects, so students will either need to buy the software or set aside time to use the computer labs.

- **REQUIRED: A web content editor, preferably [Dreamweaver 8](#)**, since the instructor will use Dreamweaver 8 to demonstrate most of the techniques. Dreamweaver is available in the computer lab on campus. You may also purchase their own copy at the discounted educational rate (about \$200 by itself or \$275 in the Macromedia Studio package, which includes Fireworks, Flash, Contribute, and FlashPaper) through the campus bookstore or any other retailer such as [AcademicSuperstore.com](#), [JourneyEd.com](#), [Gradware.com](#), [CampusTech.com](#), or others. A 30-day trial version is available for download from the Macromedia site, but obviously the semester lasts more than 30 days, so you'll either need to buy it eventually, use the copy in the computer labs, or use another tool. One possibility worth looking at is [NVU](#), a FREE, reasonably

robust WYSIWYG editor. NVU can do anything that you need it to do for the purposes of this class, so it's a good choice for students on a tight budget.

- **REQUIRED: You will need various browsers** installed on your computer (or you can use the browsers in the computer lab) to test the cross-browser compatibility of the content you create.
  - Windows users should at least have the following:
    - [Internet Explorer 6](#)
    - [Opera 8.5](#)
    - [Firefox 1.5](#)
    - [Netscape 4.75](#) (Yes, it's old. That's part of the point.)
  - Mac users should at least have the following:
    - [Safari](#)
    - [Firefox 1.5](#)
    - [Opera 8.5](#)
    - [Internet Explorer 5 \(Classic | OS X\)](#)
    - [Netscape 4.8](#)
- **Highly Recommended: Any graphics program** that can create graphics for the web. If you can't afford the more expensive programs, try the cheaper ones. If you don't like any of the programs in this list, try searching on the web for "free graphics programs" (or something similar) and you'll see that you have quite a few options. (Prices shown are approximate educational price.)
  - High-end graphics software (which is powerful but perhaps overly complicated for people who aren't used to it):
    - [Adobe PhotoShop](#)—(Windows/Mac) very common among graphics professionals; can be purchased alone (about \$290) or in the Adobe Creative Suite (about \$380); the downside is that it is expensive and can be complicated to use.
    - [Corel PhotoPaint](#)—(Windows/Mac) this is my personal favorite for professional-level graphic art; it is just as powerful as PhotoShop (and, in my opinion, more user-friendly); it comes with the CorelDraw Graphics

suite (about \$90); the downside is that, like PhotoShop, this has many powerful features that can be difficult to get used to.

- [Corel Painter](#)—(Windows/Mac) for creating computer-based fine art; works best when used in conjunction with a graphics tablet; the downside is that it can be non-intuitive for non-artists (about \$100)
- [The Gimp](#)—(Windows/Linux) FREE. This is a powerful graphics tool at the most reasonable price of all; as with the others, the downside is that the interface is sometimes confusing to people who haven't used advanced graphics programs.
- Mid-to-high-level software:
  - [Corel Paint Shop Pro](#)—(Windows/Mac) quite robust at a reasonable price (about \$40); quite user-friendly compared to some of the previously-mentioned programs.
- Mid-level software:
  - [Macromedia Fireworks](#)—(Windows/Mac) great for web graphics, it comes with Macromedia Studio 8 (about \$275); quite user-friendly.
  - [PhotoPlus](#)—Version 6 is free. Version 8 is \$9.99. This is a great option for students on a budget. It will do most things you need to do for the web.
- Ultra-Low-level software:
  - Microsoft Paint—Yes, it's possible to use this program to create graphics for the web, but you'll be much happier and more successful using a more powerful program.

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## Semester Schedule

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### Tentative Schedule of Activities

Class	Date	Topic	Assignment Due
1	Jan. 23	Getting Started; User Customization of Web Content	—
2	Jan. 30	XHTML Part 1	weekly workshop
3	Feb. 6	XHTML Part 2	weekly workshop
4	Feb. 13	Dreamweaver Techniques	weekly workshop
5	Feb. 20	Web Accessibility and Universal Design	1) weekly workshop & 2) <b>Proposal</b>
6	Feb. 27	Presentation and Style Using Cascading Style Sheets (CSS)	weekly workshop
7	Mar. 6	Site Navigation and Site Structure	weekly workshop
8	Mar. 13	<i>SPRING BREAK (NO CLASS)</i>	—
9	Mar. 20	Images and Illustrations	weekly workshop
10	Mar. 27	Tables and Frames	1) weekly workshop & 2) <b>Conceptual prototype design</b>
11	Apr. 3	Forms, java_script, and Interaction	weekly workshop
12	Apr. 10	Captions, Flash, and Multimedia	1) weekly workshop & 2) <b>Accessibility</b>

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			<b>evaluation</b>
13	Apr. 17	PDF, Word, PowerPoint, and their Alternatives	weekly workshop
14	Apr. 24	Lab Work: Prepare Final Project	weekly workshop
15	May. 1	FINAL PRESENTATIONS	<b>Final projects</b>

## Assignments

### List of Assignments

<b>Assignment</b>	<b>Points</b>
<a href="#">Assignment 1: Weekly Workshop Exercises</a>	15
<a href="#">Assignment 2: Proposal for Final Project</a>	5
<a href="#">Assignment 3: Conceptual Design for Final Project</a>	20
<a href="#">Assignment 4: Accessibility Evaluation of an Existing Site</a>	25
<a href="#">Assignment 5: Final Project: Development of an Accessible Web Site</a>	35
Total points	100

### Assignment Details

#### Assignment 1: Weekly Workshop Exercises (15 points)

I will teach certain concepts and skills in each class session. You will apply these concepts and skills by completing weekly workshop exercises. In some cases, you will be able to finish the workshop exercises by the end of the class period. In other cases, you will need to work on the exercises after class or during the week. In all cases,

the exercises are due by the beginning of the next class (7:20pm each Monday evening).

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### Assignment 1 Grading Criteria

Credit	Criteria
Full credit	The student completed the assignment as directed <i>AND</i> on time.
No credit	The student did not turn in the assignment, did not finish the assignment, turned in the assignment late, or did not follow the instructions properly <a href="#">see end note 1</a> .

### Assignment 2: Proposal for Final Project (5 points)

Write a proposal for your final project. In this proposal, you should:

1. Explain the purpose of the site
2. Categorize the site (e.g. personal web site, e-commerce site, educational site, corporate/business site, informational site about a certain topic, blog, gateway/portal, etc.)
3. Explain who the site's main audience will be
4. Explain what the content will be (refer to the [description of the final project below](#) to make sure you include all of the required elements)
5. Provide examples of 7 other web sites with a similar purpose and audience, or if your idea is truly unique, describe how it will be different from every other site on the web (make sure you search the web pretty thoroughly before claiming your site will be unlike all others)

The proposal is due at the beginning of the class on the assigned date (7:20 Monday evening).

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### Assignment 2 Grading Criteria

Credit	Criteria
Full credit	The student completed the assignment as directed <i>AND</i> on time <i>AND</i> received approval from the instructor to proceed with the project.
Partial credit	The proposal was approved by the instructor, but the student turned in the assignment late (5% per day point reduction), or the assignment was incomplete, or the student did not make an adequate attempt to complete the assignment as directed.
No credit	The proposal was not turned in, or was turned in so late that all possible points were deducted, or the proposal was not approved by the instructor <a href="#">see end note 2</a> .

### Assignment 3: Conceptual Prototype Design for Final Project (20 points)

The conceptual prototype design is not a real web site. It's just a visual representation of what you want the final design to look like. You should base your prototype on your proposal. If you change your mind about your proposal after it is approved, you must first receive permission before proceeding with the prototype or the final project.

You can create your conceptual design in a graphics program (e.g. PhotoShop, PhotoPaint, Gimp, Paint Shop Pro, Fireworks, etc.), or in a program that provides some graphics creation support (e.g.

PowerPoint, Word, etc.), or on paper (e.g. using pencil, pen, markers, construction paper, or even crayons if you like). Some people like to create their prototypes using XHTML and CSS, in essence making preliminary versions of the real thing. This is also an option, but is not required.

Some conceptual prototypes are very detailed, containing virtually everything that the final design will contain, down to the last details of the graphical look and feel. These "high fidelity" prototypes can be very useful for visualizing the artistic impact of the design. Other conceptual prototypes are simpler, "low fidelity" versions of the eventual design. It doesn't matter whether you create a high fidelity or a low fidelity prototype, but you should pay close attention to where objects are placed, how users will know what page they're on, how users will navigate from one section of the site to another, etc.

Remember to:

1. Create a prototype for each page that you plan to create in your final design
2. Include all of the required elements described in the [final project description](#) below

At a minimum, your prototype should communicate the following information:

1. The identity of the site (e.g. in a logo, main graphic at the top, styled text, byline, slogan, etc.)
2. The visual layout of the site navigation (will you be using "tabs" or side links, or some other navigation scheme?)
3. How users will know which page they're on (will you use "breadcrumbs" or visual cues or some other method?)
4. Which parts of the design are the template and which parts are the main content
5. How you plan to make the design interesting (you should at least show where the major graphics will go; you could also suggest a color scheme, style ideas, etc.)

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### Assignment 3 Grading Criteria

Credit	Criteria
Full credit	The student completed the assignment as directed <i>AND</i> on time <i>AND</i> received approval from the instructor to proceed with the final project.
Partial credit	The conceptual prototype design was approved by the instructor, but the student turned in the assignment late (5% per day point reduction), or the assignment was incomplete, or the student did not make an adequate attempt to complete the assignment as directed.
No credit	The conceptual prototype was not turned in, or was turned in so late that all possible points were deducted, or the prototype was not approved by the instructor <a href="#">see end note 3</a> .

### Assignment 4: Accessibility Evaluation of an Existing Site (25 points)

Evaluate the accessibility an existing web site (from a list of web sites that will be supplied by the instructor) in terms of its compliance with Section 508 guidelines and other accessibility criteria (to be supplied by the instructor).

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### Assignment 4 Grading Criteria

Credit	Criteria
Full credit	The student found all of the relevant accessibility errors using the criteria supplied by the instructor <i>AND</i>

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demonstrated an understanding of the potential barriers experienced by people with disabilities on that particular site *AND* turned in the assignment on time.

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Partial credit The student missed some of the errors, demonstrated a partial or faulty understanding of potential accessibility barriers, or turned in the assignment late (5% per day point reduction).

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No credit The student did not complete the assignment, or turned it in so late that there were no points possible (based on the 5% per day point reduction for late assignments).

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## Assignment 5: Final Project: Development of an Accessible Web Site (35 points)

This is the big assignment for the class. Everything you learn in this class will prepare you for this project. You should not leave this until the last minute, the last week, or even the last month. You should begin to think about and work on this project as soon as possible. Your proposal and your prototype are steps in the process toward creating the final web site.

The following **general principles** will be used to judge all of the content:

- the page complies with Section 508 guidelines
- the content is **perceivable** when accessed with a screen reader, or with sound turned off, or when styles are turned off, or when contrast is reduced, or when fonts are enlarged,
- the content is **operable** with the keyboard, and does not contain any seizure-inducing visual elements

- the content is **understandable**, meaning that the purpose of each page is clear, the content within each page is communicated well, and the navigation methods are not confusing
- the content is **robust** enough to display correctly and accessibly in the latest versions of Internet Explorer, Firefox, Opera, and Safari, and it either displays correctly or degrades gracefully in older versions of browsers

The table below explains the grading criteria in more detail:

<b>Assignment 5 Grading Criteria</b>		
<b>Category</b>	<b>Criteria</b>	<b>Points</b>
<b>Template and Navigation Scheme</b>	<ul style="list-style-type: none"> <li>• the "look and feel" of the template is consistent across pages</li> <li>• the navigation scheme is consistent across pages</li> <li>• the navigation scheme represents the site's content logically and concisely</li> <li>• there are visual and semantic cues that allow users to know which page they're on within the site</li> <li>• all pages are only one logical click away from the home page, or else there is a good reason to require extra clicks</li> <li>• the first link on the page</li> </ul>	5

	allows users to skip to the main content	
<p><b>Pages (a minimum of 5 pages are required)</b></p>	<ul style="list-style-type: none"> <li>• the &lt;title&gt; element is present (and useful and accurate)</li> <li>• the page passes the W3C validator (<a href="http://validator.w3.org/">http://validator.w3.org/</a>) for XHTML 1.0 strict</li> <li>• the page passes WAVE (<a href="http://dev.wave.webaim.org">dev.wave.webaim.org</a>) and AccVerify online (<a href="http://CynthiaSays.com">CynthiaSays.com</a>)</li> <li>• the page uses semantic structural markup elements (headers, bulleted lists, etc.) and uses them appropriately</li> <li>• the page contains well-organized, well-written text</li> <li>• there are no broken links or missing images</li> <li>• there are no spelling mistakes</li> </ul>	<p>12.5 (2.5 points per page <a href="#">see end note 4</a>)</p>
<p><b>Required Elements</b></p>	<ul style="list-style-type: none"> <li>• information about the author (or company, or organization, etc.) and a contact method <b>(.5 points)</b></li> <li>• well-written, understandable textual content relevant to</li> </ul>	<p>17.5</p>

the purpose of the site **(2 points)**

- at least one "decorative" image (an image that does not require alternative text), inserted using the background property in CSS **(2 points)**
- at least three foreground images which require alternative text **(1.5 points)**
- at least one complex foreground image with an accompanying long description **(2 points)**
- at least one data table with headers using the `scope` attribute **(2 points)**
- at least one data table with multiple (2 or more) levels of headers using the `id` and `headers` attributes **(2.5 points)**
- at least one form **(2.5 points)** with at least one of each of the following:
  - a text `<input>` element (with a proper `<label>` element)
  - a set of either checkboxes or radio buttons (with the proper `<label>` elements and a `<fieldset>` with

<legend>)

- a submit button
- at least one captioned audio or video file **(2.5 points)**

Total points

35

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## Grades

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### Grading Scale

Points	Grade
94-100	A
90-93	A-
87-90	B+
84-86	B
80-83	B-
70-79	C
Below 70	F

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## CEHD Statement of Expectations

The College of Education and Human Development (CEHD) expects that all students abide by the following:

- Students are expected to exhibit professional behavior and dispositions. See <http://gse.gmu.edu/> for a listing of these dispositions.
- Students must follow the guidelines of the University Honor Code. See [http://www.gmu.edu/catalog/apolicies/#TOC\\_H12](http://www.gmu.edu/catalog/apolicies/#TOC_H12) for the full honor code.
- Students must agree to abide by the university policy for Responsible Use of Computing. See <http://mail.gmu.edu/> and click on Responsible Use of Computing at the bottom of the screen.
- Students with disabilities who seek accommodations in a course must be registered with the GMU Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester. See [www.gmu.edu/student/drc](http://www.gmu.edu/student/drc) or call 703-993-2474 to access the DRC.

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## End Notes

1. If an assignment turns out badly, I may grant you permission to resubmit the assignment for full credit *ONLY IF* you submitted the first attempt on time and if you made a reasonable attempt in your first attempt to complete the assignment correctly.
2. If I don't approve your original proposal, I will discuss options with you and allow you to resubmit the proposal *for full credit* with an idea that is suitable, *ONLY IF* you submitted the assignment on time *AND* made a reasonable attempt to fulfill the assignment in the first place. Partial credit may be possible if some but not all of these criteria are met.
3. As with the previous assignment, you must first obtain approval before continuing with your final project. You will have the

opportunity to modify your prototype for full credit *ONLY IF* you submitted the assignment on time *AND* made a reasonable attempt to fulfill the assignment in the first place. Partial credit may be possible if some but not all of these criteria are met.

4. If you create more than 5 pages, pick 5 of them for the instructor to evaluate.