



UNIVERSITY OF  
CALGARY

# HTML5 and CSS3

**ICT 580**

Ali Khalil, Ph.D.

Computer Science / Software Engineering

University of Calgary - Continuing Education

# Course Outcomes

- Develop a solid understanding of designing web pages with attention to accessibility, cross-browser compatibility, search engine optimization and responsiveness
- Become familiar with HTML5 and CSS3 standards and web development tools
- Apply the standards of HTML/CSS3 and their common features

# Course Assignments

1. Create a simple web page (15%)
2. Edit a HTML5 webpage and add content (20%)
3. Style a HTML5 webpage with a CSS3 stylesheet (25%)
4. Create a 3-page responsive website (40%)

See assignment sheets for details

See assignment due dates in D2L (Brightspace)



UNIVERSITY OF  
CALGARY

## Welcome and Introductions

**What do you already know  
about HTML and CSS?**



UNIVERSITY OF  
CALGARY

## Lesson 1

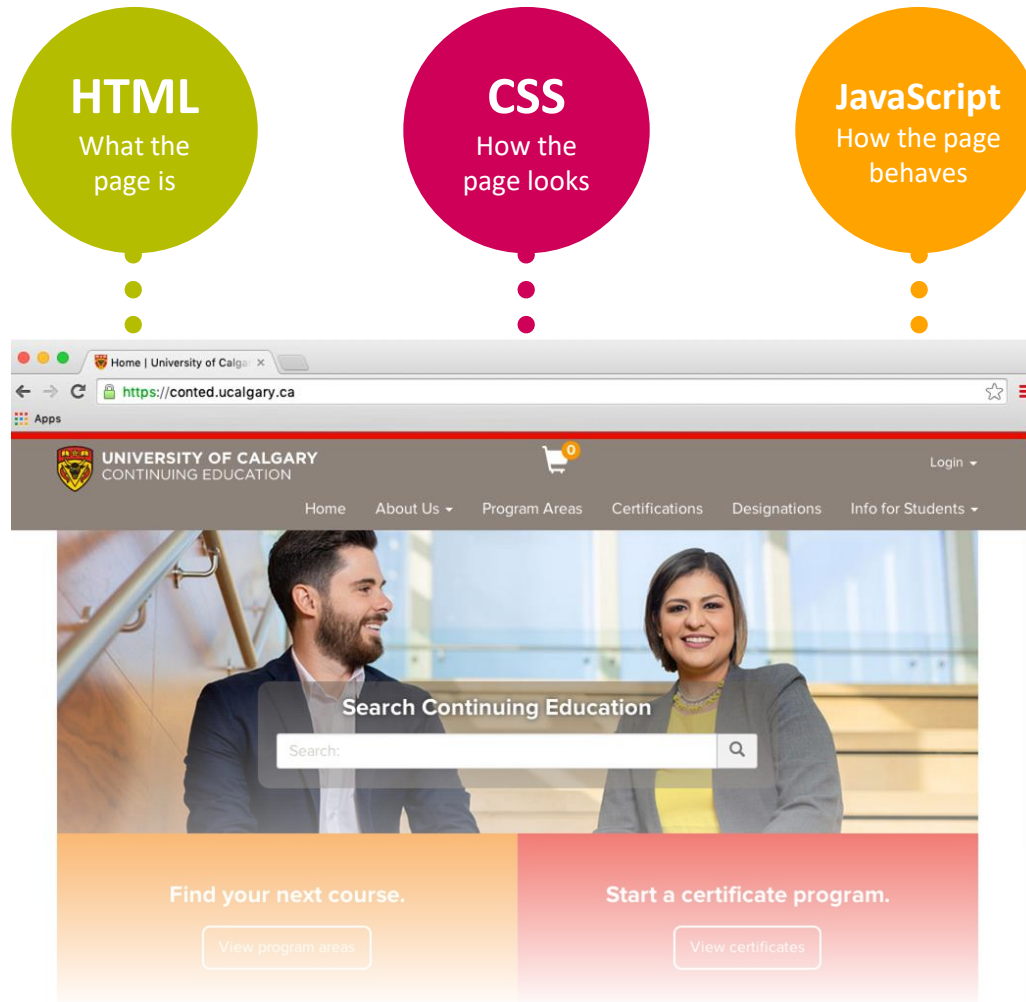
# Introduction to HTML

# Lesson Outcomes

By the end of this lesson, you will be able to:

- Identify how HTML forms the basic building blocks for any web page
- Use basic HTML tags to create a simple web page
- Demonstrate how tag changes are visually displayed in a web browser
- Create a basic HTML webpage

# What makes up a webpage



# What is HTML

- The base structure of every webpage
- Acronym for: *Hypertext Markup Language*
  - **Hypertext**  
*computer readable text*
  - **Markup**  
*to structure in a specific format*
- **HTML**  
*Defines the structure of website content (text, images, styles, programming) so the browser knows how to display it*



# HTML is an evolving language

- Developed in 1991, and is still evolving
- World Wide Web Consortium (W3C) defines HTML Standards
- Web Hypertext Application Technology Working Group (WHATWG) works on future improvements
- HTML5.2 is the latest version – recommended in 2017

## Why does HTML evolution matter?

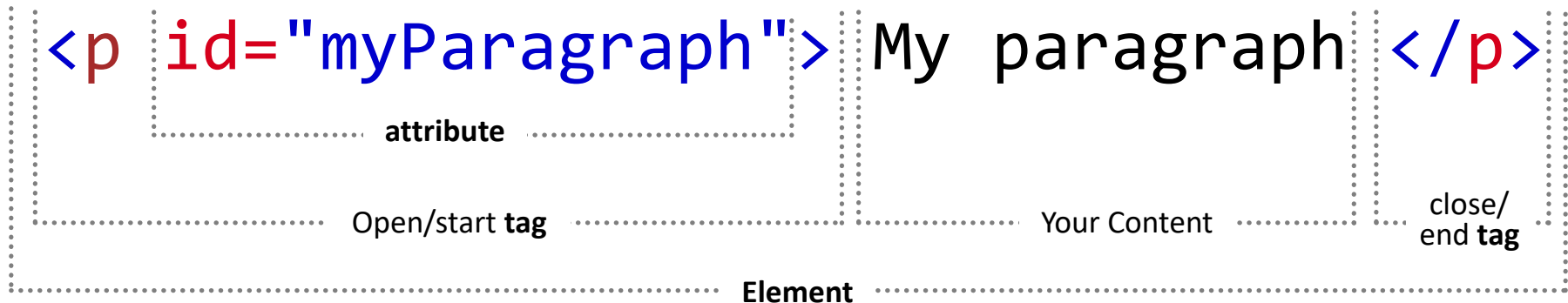
- HTML5 is supported by modern browsers but **not all HTML5 markup** may be implemented yet
  - Browsers need to keep up with the HTML standards
  - You must ensure your HTML will work in your target browser
  - You can check browser support at the W3school reference site <https://www.w3schools.com/html/default.asp>

## Basic HTML Terms

**Element:** *A single piece of a web page*

**Tag:** *Provides the coding structure for an element*  
*Browsers do not show tags, they render tags*

**Attribute:** *Added information about an element defined in the element's tag*



## HTML Syntax: opening and closing tags

HTML elements that **have content** must have an open (start) and close (end) tag

1. Open/start tag: `<elementname>`
2. Your content
3. Close/end tag: `</elementname>`

`<p>`My first paragraph`</p>`

Open/  
start tag      Your Content      close/  
end tag

## HTML Syntax: empty tags

Elements that have **no content** do not need a close tag

- Can be written as `<elementname>`
- Closed in the open tag: `<elementname />`

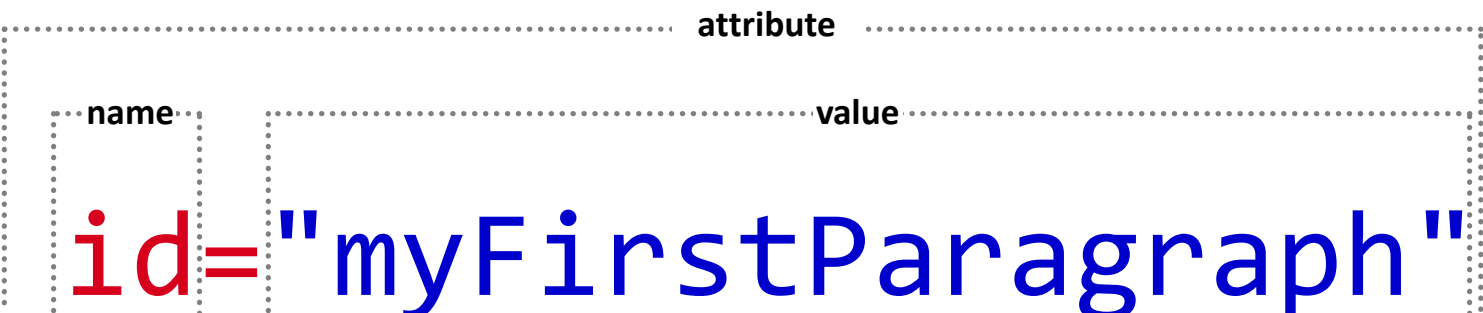
`<p>`My first paragraph  
with a line break`</p>`

`<br />`

The line break tag does not contain any content so it does not need a closing tag

## HTML Syntax: Attributes

- Attributes are defined in the open/start tag
- Defined as name/value pairs: **attributename="value"**



```
<p id="myFirstParagraph">  
  My first paragraph</p>
```

## HTML structure

- Every HTML page must have these elements

`<!DOCTYPE html>`

`<html>`

`<head>`

`</head>`

`<body>`

`</body>`

`</html>`

# HTML structure

- Every HTML page must have these elements

`<!DOCTYPE html>` *Defines the document type*

`<html>`

`<head>`

`</head>`

`<body>`

`</body>`

`</html>`



# HTML structure

- Every HTML page must have these elements

`<!DOCTYPE html>`

`<html>`

*Defines the document type*

`<head>`

`</head>`

`<body>`

`</body>`

`</html>`

# HTML structure

- Every HTML page must have these elements

`<!DOCTYPE html>`

`<html>`

`<head>`

*This is where the web page thinks and communicates with the browser  
– add elements like styles, scripts, metadata*

`</head>`

`<body>`

*This is what the website shows  
– add elements like text, images, videos*

`</body>`

`</html>`

## HTML structure – nested tags

- Notice the head and body tags are inside the html tag

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
</head>
```

```
<body>
```

```
</body>
```

```
</html>
```

*When an element tag is within another element tag it is **nested**  
Multiple tags can be nested within a tag*

# HTML structure – formatting nested tags

- Use tabs to easily see your page structure

```
<!DOCTYPE html>
<html>
  <head>
  </head>
  <body>
  </body>
</html>
```

# HTML Editors

- Any basic text editor can create HTML
  - Windows: Notepad
  - Mac: TextEdit
- Once you understand the basics, advanced coding editors can make coding quicker
  - **VSCode:** (<https://code.visualstudio.com/Download>)
  - Brackets
  - Dreamweaver
  - Sublime Text



UNIVERSITY OF  
CALGARY

**Let's get started...**

**Open the IDE editor**

## Create your first HTML page

- Add the basic HTML structure to your page

*code*

```
<!DOCTYPE html>  
<html>  
  <head>  
  
  </head>  
  <body>  
  
  </body>  
</html>
```

## Add a page title

- <title> belongs between the head open and close tags
- Tells the browser what your page is called

code

```
<!DOCTYPE html>
<html>
  <head>
    <title>My First HTML document</title>
  </head>
  <body>

  </body>
</html>
```



## Add a paragraph

- `<p>` belongs between the body open and closing tags
- `<p>` specifies a paragraph

code

```
<!DOCTYPE html>
<html>
  <head>
    <title>My First HTML document</title>
  </head>
  <body>
    <p>Page Content</p>
  </body>
</html>
```

# Previewing your HTML

- Save your text file as **index.html**
- Open your HTML in any browser

code

```
<!DOCTYPE html>
<html>
  <head>
    <title>My First HTML document</title>
  </head>
  <body>
    <p>Page Content</p>
  </body>
</html>
```

# Previewing your HTML

- Why didn't the Page Title appear in the browser area?

code

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
    <p>Page Content</p>
  </body>
</html>
```

# Previewing your HTML

- Why didn't the Page Title appear in the browser area?

code

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
    <p>Page Content</p>
  </body>
</html>
```

*If there is no title tag the browser tab will display "Untitled Document"*

# Paragraph tag

- Update the paragraph tag with your own content

code

```
<!DOCTYPE html>
<html>
  <head>
    <title> Page Title </title>
  </head>
  <body>
    <p>HTML uses tags to identify content on a web page. This content can be changed when we use
      tags to tell the browser how it should be displayed. This text would be an example of a paragraph.
    </p>
  </body>
</html>
```

# Heading tags

- Heading tags are used to set the hierarchy for text, the most important being `<h1>`, the least important is `<h6>`

*code*

```
<h1>Most important heading</h1>  
<h2>Second most important heading</h2>  
<h3>Third most important heading</h3>  
<h4>Fourth most important heading</h4>  
<h5>Fifth most important heading</h5>  
<h6>Least important heading</h6>
```

*browser*

**Most important heading**  
**Second most important heading**  
**Third most important heading**  
**Fourth most important heading**  
**Fifth most important heading**  
**Least important heading**

# Heading tags

Add the following below the paragraph tag:

`<p>`This is how an h1 tag changes the display `</p>`

`<p>`This is how an h2 tag changes the display. `</p>`

`<p>`This is how an h3 tag changes the display. `</p>`

`<p>`This is how an h4 tag changes the display. `</p>`

`<p>`This is how an h5 tag changes the display. `</p>`

`<p>`This is how an h6 tag changes the display. `</p>`

# Heading tags

Replace the p tags with the appropriate heading tag:

`<h1>`This is how an h1 tag changes the display `</h1>`

`<h2>`This is how an h2 tag changes the display. `</h2>`

`<h3>`This is how an h3 tag changes the display. `</h3>`

`<h4>`This is how an h4 tag changes the display. `</h4>`

`<h5>`This is how an h5 tag changes the display. `</h5>`

`<h6>`This is how an h6 tag changes the display. `</h6>`



## <ul> Unordered list tag

- Each item in the unordered list requires a list tag
- The list item tag must be nested in the <ul> tag

*code*

```
<ul>My unordered list:  
    <li>List item 1 </li>  
    <li>List item 2</li>  
    <li>List item 3</li>  
    <li>List item 4</li>  
  
</ul>
```

*browser*

My unordered list:

- List item 1
- List item 2
- List item 3
- List item 4

## <ul> Unordered list tag

- Each item in the unordered list requires a list tag
- The list item tag must be nested in the <ul> tag

code

```
<ul>My unordered list:
```

```
  <li>List item 1 </li>
```

```
  <li>List item 2</li>
```

```
  <li>List item 3</li>
```

```
  <li>List item 4</li>
```

```
</ul>
```

*Remember to use  
tabs to easily see the  
nested structure of  
your code*

browser

My unordered list:

- List item 1
- List item 2
- List item 3
- List item 4

## <ol> Ordered list tag

- Each item in an ordered list requires a list tag
- The list item tag must be nested in the <ol> tag

*code*

```
<ol>My ordered list:  
    <li>List item 1 </li>  
    <li>List item 2</li>  
    <li>List item 3</li>  
    <li>List item 4</li>  
  
</ol>
```

*browser*

My ordered list:

1. List item 1
2. List item 2
3. List item 3
4. List item 4

# Create this web page

```
<!DOCTYPE HTML>
<html>
  <head>
    <title>Hello World</title>
  </head>
  <body>
    <h1>This is the largest Header</h1>
    <p>This is the smallest Header</p>
    <h6> This is my first new paragraph</h6>
    <ul> My unordered list:
      <li>My List item 1 </li>
      <li>My List item 2</li>
      <li>My List item 3</li>
    </ul>
  </body>
</html>
```

# Create a web page with this content

- Page title should be “On My Own”

## Heading 1

H1 headings are usually the largest text on the web page.

This is my second paragraph.

**This is Heading 3. It is the third most important heading.**

**This is Heading 6. It is the least important heading.**

This is my ordered list:

1. The default value for ordered lists is a numbered list
2. Ordered lists use nested list item tags to list their items

# Create a web page with this content-demo

```
<!DOCTYPE HTML>
<html>
  <head>
    <title>On My Own</title>
  </head>
  <body>
    <h1>Heading 1</h1>
    <p>H1 headings are usually the largest text on the web page.</p>
    <p>This is my second paragraph.</p>
    <h3> This is Heading 3 It is the third most important heading.</h3>
    <h6> This is Heading 6. It is the least important heading.</h6>
    <ol> This is my ordered list:
      <li>The default value for ordered lists is a numbered list</li>
      <li>Ordered lists use nested list item tags to list their items</li>
    </ol>
  </body>
</html>
```

## <br/> Line break tag

- Use a <br/> tag to insert a line break in any text tag
- The line break tag does not require a closing tag

code

```
<!DOCTYPE html>
<html>
  <body>
    <p>This is<br/>a paragraph<br>with line breaks</p>
  </body>
</html>
```



## Review

In this class we discussed:

- The structure of HTML Tags
- The structure of HTML web pages
- The following tags:
  - `<!DOCTYPE html>`
  - `<html>`
  - `<head>`
  - `<body>`
  - `<title>`
  - `<h1>` to `<h6>`
  - `<p>`
  - `<ul>`, `<ol>`
  - `<li>`
  - `<br>`





UNIVERSITY OF  
CALGARY

**Questions?**