

# Introduction to HTML

## Hypertext Markup Language

### 超文本标识语言

Simon Mahony

[s.mahony@ucl.ac.uk](mailto:s.mahony@ucl.ac.uk)

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<http://ucloer.eprints-hosting.org/54/>

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# HTML

## (for construction of web pages)

### HTML构建网页

- Hypertext Markup (HTML)  
超文本标识语言  
是一种用来制作超文本文档的简单标记语言  
用HTML编写的超文本文档称为HTML文档
- HTML provides structure and organises documents  
HTML提供结构和组织文档
- CSS is for styling, formatting, positioning of content  
层叠样式表用来设计内容的样式、位置
- Two separate functions 两种不同功能

# HTML

- A simple text file with the extension .html  
扩展名 .html
- Home page / landing page / First page
  - Always must be named: **index.html**
  - Why? That is what the server looks for.
  - 主页/引导页/首页必须命名为index.html
  - 为什么？ 便于服务器发现

# Writing HTML 手工直接编写

Simple text editor 简单的网页编辑器

Free programs: 免费软件

- MS Notepad will work but limited functionality
- [Notepad2](#) – no installation needed
- [TextWrangler](#) (Mac)
- [jEdit](#) (Java-based)
- Important to learn the basics before using software  
用这些软件之前学习网页制作的基本知识很重要

# Basic (minimum) structure of a web page:

```
<html>                                     <元素>
  <head>
    <title>
      网页的标题
      [page title (note where this is displayed)]
    </title>
  </head>

  <body>
    这是网页的主体部分（浏览器中所有显示的内容）
    [page content goes here]
    [i.e. everything displayed in the browser]
  </body>
</html>
```

# HTML 文件一般分为两个部分：头部和主体

## 头部

```
<html>                                     <元素>
  <head>                                   --头标元素
    <title>                               --标题元素
      网页的标题
      (内容将显示在浏览器窗口的标题栏)
      [page title (note where this is displayed)]
    </title>
  </head>
```

# HTML文件一般分为两个部分：头部和主体

## 主体

<body>

HTML文件的主体

**[page content goes here]**

[i.e. everything displayed in the browser]

</body>



# Basic (minimum) structure of a web page:

```
<html>                                     <元素>
  <head>
    <title>
      网页的标题
      [page title (note where this is displayed)]
    </title>
  </head>

  <body>
    这是网页的正文
    [page content goes here]
    [i.e. everything displayed in the browser]
  </body>
</html>
```

# Basic (minimum) structure of a web page

## 网页最小结构



# Template for a basic XHTML page 基本XHTML模板

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
<meta http-equiv="content-type" content="text/html; charset=UTF-8" />
```

```
<meta http-equiv="Content-Language" content="en-gb" />
```

```
<title> TITLE OF THE DOCUMENT 网页的标题 </title>
```

```
</head>
```

```
<body>
```

```
<p> CONTENT OF THE WEBPAGE 这是网页的主体 </p>
```

```
</body>
```

```
</html>
```

**Note: all tags lower case – open and close (except empty elements)**

## Basic XHTML page



# XHTML

- Describe content of document 描述文件内容
- NOT how to style 非样式设计
- Style and position of content with CSS 层叠样式表

# Elements and attributes

## 元素与属性

- All names are in US English  
所有元素与属性都以美式英语命名

# Elements and attributes 元素和属性

- Elements <元素> 标记开头
  - Start tag `<p>`
  - End tag `</p>`
  - Content goes within those tags (some text)
- Attributes <属性>
  - Describe the element (tell you something about it)
- Values <值>
  - Syntax:

`Attribute_name="attribute value"`

Eg: `<h2 class="style1">second level heading</h2>`

``

# Block-level and line-level tags

## 区块标签和内联标签

- block-level 区块级别

`<h1>`                      `</h1>` (h1, h2, h3, h4, h5)

[note numbers = hierarchy of headings not heading 1,2,3]

`<p>`                              `</p>`

`<table>`                      `</table>`

`<div>`                      `</div>` (exception to rule)

- line-level 线级别

`<em>`                              `</em>`

`<strong>`                      `</strong>`



# Nesting elements 嵌套元素

<body>

<p>

<strong><em>Some text</em></strong>



<strong><em> Some text</strong></em>



</p>

</body>



Photo: Lachlan Fearnley

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[https://upload.wikimedia.org/wikipedia/commons/0/0a/Russian\\_Dolls.jpg](https://upload.wikimedia.org/wikipedia/commons/0/0a/Russian_Dolls.jpg)

## Empty elements 空元素

- Note space before `/>`  
空元素可以不写成开始标签和结束标签的形式
- `<br />` line break - forces white space
- `<hr />` horizontal rule
- `` link to an image

# Adding lists to your web

## 常用的列表有3种格式

[有序列表]

`<ol>`

`<li> list item </li>`

`<li> another list item </li>`

`</ol>`

[无序列表]

`<ul>`

`<li> list item </li>`

`<li> another list item </li>`

`</ul>`

# Adding lists to your webpage

## 在网页上添加列表

- ordered list: [有序列表]

`<ol>`

`<li> list item </li>`

`<li> another list item </li>`

`</ol>`

- unordered list: [无序列表]

`<ul>`

`<li> list item </li>`

`<li> another list item </li>`

`</ul>`

## Definition list 定义列表

`<dl>` [开始，列表条目用]

`<dt>` definition term `</dt>`

`<dd>` definition text `</dd>`

`<dt>` definition term `</dt>`

`<dd>` definition text `</dd>`

`<dt>` definition term `</dt>`

`<dd>` definition text `</dd>`

`</dl>`

## Definition list output 定义列表

Definition term  
Definition text

Definition term  
Definition text

Definition term  
Definition text

## Adding navigation 添加导航

- Link to outside website 链接到外部网站  
`<a href="http://www.baidu.com">link to Baidu</a>`
- Links within the page 网页内部的链接  
`<a href="#top">back to top of page</a>`  
Needs a \*bookmark\* to link to: `<a id="top"></a>`
- Link to another page in the same site 链接到相同网站的另一个网页  
(assumes files are in the same folder)  
(假设文件在一个文件夹)  
`<a href="second.html">link to second page</a>`

# Navigation menu 导航菜单

- Unordered List (Vertical) menu: 无序列表

```
<ul>
```

```
  <li><a href="index.html">Home page</a></li>
```

```
  <li><a href="page2.html">second  
page</a></li>
```

```
  <li><a href="page3.html">third page</a></li>
```

```
</ul>
```

- Line of Links (Horizontal) menu: 链接菜单

```
<div id="navigation">
```

```
  <a href="index.html">Home page</a> |
```

```
  <a href="page2.html">second page</a> |
```

```
  <a href="page3.html">third page</a>
```

```
</div>
```



# Adding images to your pages

## 添加图像

- Syntax 句法

```

```

- Example 举例

```

```

# Adding tables

## 添加表格

Demonstration of Table  
with no styling

Head 1	Head 2	Head 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3

Demonstration of Table with  
Row Shading and Borders

Head 1	Head 2	Head 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3

**Note: tables are for TABULAR DATA ONLY and NOT for positioning content**  
**注意：表格只用来记录表格数据，不是用来定位内容。**

## Structure of a table 表格结构

```
<table>
```

```
<tr>
```

```
<td> Column 1 data </td>
```

```
<td> Column 2 data </td>
```

```
</tr>
```

```
<tr>
```

```
<td> Column 1 Data </td>
```

```
<td> Column 2 Data </td>
```

```
</tr>
```

```
</table>
```

## Table headings 表格的表头

```
<table>  
  <tr>  
    <th> Column 1 Heading </th>  
    <th> Column 2 Heading </th>  
  </tr>  
  <tr>  
    <td> Column 1 Data </td>  
    <td> Column 2 Data </td>  
  </tr>  
</table>
```

## Adding extra information 添加其他表格信息

`<table summary="description of the content">`

`<caption> a caption for my table </caption>`

NB: the caption must be INSIDE the table and immediately following the `<table>` tag.

注意：caption标签必须在表格之内并且紧随table标签之后

```
<table summary="a description of the content">
```

```
<caption> a caption for my table </caption>
```

```
<tr>
```

```
    <th> Column 1 Heading </th>
```

```
    <th> Column 2 Heading </th>
```

```
</tr>
```

```
<tr>
```

```
    <td> Column 1 Data </td>
```

```
    <td> Column 2 Data </td>
```

```
</tr>
```

```
</table>
```

[Question: whv do to the trouble of doing this?]

【思考：为什么要多此一举？】

# Special characters

## 特殊字符

- How would you display `< or >` in html?  
在HTML语言中如何表现`<or>`?
- Non-standard characters or ones with a function in html that need special treatment  
有含义的非标准元素在HTML中需要特别对待

# Using special characters

## 使用特殊字符

- Non-standard characters or ones with a function in html need special treatment  
有含义的非标准元素在HTML中需要特别对待
- Syntax: ampersand+code+semi-colon

Eg: & = &

&lt; = <

&gt; = >

&quot; = "

Also other languages:

&eacute; = é

[For more see: [http://www.w3schools.com/html/html\\_entities.asp](http://www.w3schools.com/html/html_entities.asp)]



# Adding extra information to links

## 在链接里添加额外信息

- **A title attribute:** 标题属性

This will show up in a \*tooltip\*

```
<a href="http://www.baidu.com" title="a link to Baidu">link to Baidu</a>
```

- **Opening in a new window:** 在新窗口打开

```
<a href="http://www.baidu.com" title="a link to Baidu. Opens in a new window" target="_blank">link to Baidu</a>
```

# Structural divisions of the webpage

## 网页结构划分

- The `<div>` element defines logical and structural divisions of a webpage  
`<div>`定义网页的逻辑和结构分区
- EG: header (页眉), footer (页脚), content etc.
- `<div id="header">stuff in the header</div>`
- `<div id="content">main page content</div>`
- `<div id="footer">stuff in the footer</div>`

# Multi-page website

## 多页网站

- Organise your material  
组织你的内容
  - break the content into individual parts  
将内容分解成独立的部分
- Select pages and file names (headings)  
选择页和文件的名称（标题）
- Always name first page: **index.html**
- Make file names meaningful 文档命名合理化  
short / lower case / letters & numbers / no spaces /  
underscores / start with letter  
短/小写/字母及数字/无空格/下划线/由字母开始

# Adding comments in your markup

## 在标记中添加评论

`<!-- anything here will be ignored by the browser -->`  
`<!--评论中的内容不会显示在浏览器中-->`

e.g. `<!-- list starts here -->`  
`<!-- list ends here -->`  
`<!-- edited up to here -->`  
`<!-- check the formatting of these footnotes -->`

# Validating HTML

## 验证HTML

- W3c Markup Validation Service
- <https://validator.w3.org/>



Google



Facebook



Twitter / Home



Google Mail



Imported From Firefox



Most Visited



Getting Started



DDoS: Website-crippli...



Getting Started



## Markup Validation Service

Check the markup (HTML, XHTML, ...) of Web documents

Validate by **URI**

Validate by **File Upload**

Validate by **Direct Input**

### Validate by URI

Validate a document online:

Address:

► [More Options](#)

Check

This validator checks the [markup validity](#) of Web documents in HTML, XHTML, SMIL, MathML, etc. If you wish to validate specific content such as [RSS/Atom feeds](#) or [CSS stylesheets](#), [MobileOK content](#), or to [find broken links](#), there are [other validators and tools](#) available. As an alternative you can also try our [non-DTD-based validator](#).



The W3C validators rely on community support for hosting and development.

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This service runs the W3C Markup Validator, [v1.3+hg](#).



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# Examples of University Homepage

## 大学主页示例

- Screenshot of University homepage

# HTML code of the University Homepage

## 大学主页的HTML代码

- Screenshot of code behind University homepage
- (View source)



**Repeat for each institution**

# **Show search engine search results along with the text being displayed**

## **搜索引擎结果及显示文本**

- Google
- Bing
- Baidu
  
- Where does this text come from?  
这些文本从何而来
- It is not displayed on the webpage.  
在网页上没有显示

- Show the institution home page again
- Where does that text come from
- Show source code for that page
- Indicate `<meta name="description" content="...">`

# HTML5 – the way forward

## HTML5-前进之路



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- W3C release standard for HTML5 (2014)
  - HTML 5.0, HTML 5.1, HTML 5.2 ([living standard](#))
- W3School HTML5 (Chinese)
- <http://www.w3school.com.cn/html5/index.asp>

# Screenshot of W3school HTML5 page

## W3school HTML5网页截图

- <http://www.w3school.com.cn/html5/>

# Template for a basic HTML5 page

## 基本的HTML5模板

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <meta charset="UTF-8">
```

```
    <title> TITLE OF THE DOCUMENT 网页的标题</title>
```

```
  </head>
```

```
  <body>
```

```
    <p> CONTENT OF THE WEBPAGE 这是网页的主体</p>
```

```
  </body>
```

```
</html>
```

# HTML5 and CSS3



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- Get the basics right first
  - HTML / XHTML
  - CSS
- 
- Latest standards: HTML5 and CSS3

# HTML5



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- Browser support – limited in older versions
  - Need up to date browser 需要较新版本的浏览器
  - Some functions not supported 不支持某些功能
- Retains some features and dumps others  
保留和舍弃部分特征
  - Simplifies <doctype> definition
    - <!DOCTYPE html>
    - <meta charset="UTF-8">
  - Clear separation of content & style 内容与形式的分离
  - No style tags so forces use of CSS 必须使用CSS样式
  - New features being developed all the time 新特征随时更新



# Differences between HTML5 & XHTML document outline

## HTML5与XHTML文档大纲不同之处

- XHTML: `<h1>` `<h2>` `<h3>` to structure content
  - `<div>`
  - Based on hierarchy 基于层级
- HTML5: sectioning elements 切片元素
  - `<article>` `<aside>` `<nav>` `<section>`
  - These can include `<h1>` `<h2>` etc within these elements
    - 可以在这些元素中插入`<h1>``<h2>`标签

# Examples of new semantic elements HTML5

## 新HTML5语义元素示意

- W3Schools: HTML5 Semantic Elements
- [https://www.w3schools.com/html/html5\\_semantic\\_elements.asp](https://www.w3schools.com/html/html5_semantic_elements.asp)

# Flash is DEAD

## 放弃Flash

- Do NOT use it! 不要用！
- Image of Flash on a gravestone
  - Adobe's multimedia browser plugin (open door to malware)
  - Steve Jobs: kills battery so not used in iOS
  - YouTube (2015) stop serving Flash videos
  - Mozilla (Firefox) block Flash (2016)
  - Google Chrome blocking soon (2016)

# HTML Element Reference

## HTML元素参考

- Page showing new HTML5 tags HTML5新标签
- W3schools: <https://www.w3schools.com/tags/>

# HTML Element Reference in Chinese

## 中文HTML元素参考

- Page showing new HTML5 tags HTML5新标签
- With a description in Chinese
- W3school: <http://www.w3school.com.cn/tags/>

# Validating HTML5

## 验证HTML5

- Standard W3C validator: HTML & XHTML only
  - According to document type 根据文件类型
- Use Nu HTML Checker:  
<https://validator.w3.org/nu/>
  - Use text input 使用文本输入
- There are several other Validator.nu sites  
其他验证网站
  - Baidu to try them out
  - E.g.: <http://html5.validator.nu>
  - Again use text input

## CSS3



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- Latest standard for CSS CSS最新标准
- Backwards compatible with earlier versions  
与较早版本的CSS兼容
- Less markup 更少的标记
- Download and display faster on tablets and smart phones  
在平板电脑和智能手机上下载和呈现速度更快

# CSS3



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- New features 新特征
- 2D / 3D
- Animations 动画
- Video 视频
- Allows you to style new HTML5 elements  
允许给HTML5元素添加样式



# CSS3

- Allows you to style new HTML5 elements  
允许给HTML5元素添加样式
- See: W3 CSS3 Introduction
  - <http://www.w3school.com.cn/css3/index.asp>

## W3Schools pages on CSS

- [https://www.w3schools.com/css/css\\_intro.asp](https://www.w3schools.com/css/css_intro.asp)

## **W3School pages on CSS and CSS3 in Chinese**

- W3school CSS:  
<http://www.w3school.com.cn/css/index.asp>
- W3schools CSS3:  
<http://www.w3school.com.cn/css3/index.asp>

## CSS3 validation

### 验证CSS3

- W3C CSS Validation Service W3C CSS验证服务
  - <https://jigsaw.w3.org/css-validator/>
  - Use direct input and copy paste code  
直接输入和拷贝粘贴代码
  - If using CSS3 make sure you select 'More Options'  
如果使用CSS3，确保你选择了 ‘更多选项’
    - Then CSS leve3  
然后选择CSS3

# W3School HTML Tutorials

## W3School HTML 教程

- HTML <http://www.w3school.com.cn/html>
- XHTML <http://www.w3school.com.cn/xhtml>
- HTML5 <http://www.w3school.com.cn/html5>