

Introduction to Responsive Design

What This Course Will Cover

- The *BASICS*
 - What it is and why you need to know it.
 - Customizing your own site
 - Using frameworks
- We assume that you know basic HTML, CSS, and how to host your site on a server.

Week One

- Focus is on theory:
 - What does responsive design mean?
 - What makes for good responsive design?
 - What is the meaning of fluid measurements?

Week Two

- **Media queries**
 - What are they?
 - How do you plan first for best practice?
 - What is the relationship with breakpoints?
 - How are they related to accessibility?

Week Three

- Using Media Queries with Grid
- Using Media Queries with Flex
- Media Queries for Accessibility

Week Four

- **Frameworks**
 - **Benefits/Pitfalls**
 - **Bootstrap**

Final Project

- Use your coding skills to create a responsive page using a framework and/or media queries.

Who is this class for?

- This class is for people:
 - new to responsive design.
 - with a general knowledge of HTML and CSS necessary.
 - who have persistence.

Who Am I?

- PhD in Computer Science
- Two decades of teaching experience
- Emphasis on education for those who running around classrooms while helping students debug

Workload and Evaluation

- **Weekly videos**
 - Lecture format – watch anywhere
 - Demo format – “Code With Me”
- **Weekly readings**
 - Online articles
- **Weekly assessments**
 - Quizzes
 - Coding

Succeeding in This Class

- In a perfect world you would code with a friend...so use the message boards.
- Never spend more than 20 minutes on something that doesn't work. Move on.
- Look things up on your own!
- Practice, practice, practice!

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What is Responsive Design?

What is Responsive Web Design?

- It is designing your sites with multiple screen sizes/resolutions in mind.
- Sites should “work” under any platform, any browser size, any orientation. The user should have the power.

Adapting to user needs and device capabilities

- A small screen should NOT mean less content.
- People are doing more on their phones than ever before
 - watching videos, filling out applications, coding,

Never assume the user won't need access to a functionality.

Concepts to consider

- Media queries – detecting the viewport size
- Flexible grid-based layout for relative sizing
- Flexible images

Examples of great design

<http://mediaqueri.es/>

Not great design....

<https://www.irs.gov/>

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Testing Sites

How can you test your site?

- If you want to test your Site, but you don't have access to multiple devices, what should you do?

Resize Your Window

- One option is to resize your own window and refresh the site
 - Doesn't solve problem if you are on a mobile device

Use an online tool

Online tool:

- <http://ami.responsivedesign.is/>
- <http://www.intro-webdesign.com>
- <http://www.mlive.com>
- <http://collemc.people.si.umich.edu/>

Chrome or Firefox Tools

- Many browsers have tools for viewing your code on different viewports.
- With Chrome you can use Inspect Element to see different viewports.

Review

- Surveying existing sites will help you develop a feeling for what you would like (or like to avoid) on your site.

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Benefits of Responsive Design

“Responsive” options

- **Responsive Web Design (RWD)** – fluid measurements, flexible grids, and varying CSS rules
- **Adaptive Design (dynamic serving)** – returns one of multiple versions of a page based on the type of device
- **Separate Mobile Site (.m)**- a separate page URL for the mobile site

RWD

- Is it responsive? If the server is sending back the same code regardless of the device, you are using RWD.
- This can be detected automatically, by looking for **meta name = "viewport"**

Adaptive Design

- Server returns different code (HTML and CSS) depending on the device requesting the page.
- The same URL is used.
- May get messed up if the wrong device type is detected.

Separate URL

- Separate URLs serve different code to desktop and mobile devices (and perhaps even tablets), and on different URLs.
- You can relate the URLs with a `<link>` tag and `rel="canonical"` and `rel="alternate"` elements.

Why RWD?

- Easier to share your data with a single URL
- Easier for search engines (Google) to index the page
- Fewer files = less maintenance
- Less redirection = lower load time

Why this is important

- If you are interested in Web Design, the importance of responsive design may be obvious.
- If you need to convince someone to pay you to make their site responsive, some facts help.

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Fluid Measurements

Fluid measurements

- Eloquent speakers can talk about the artistry of responsive design. I can't.
- Your content should fit the size constraints of the viewport.
- Vertical scrolling is about content, horizontal scrolling is bad design.

Absolute measurements

- **px**
 - One device pixel (dot) of the display. (1px is equal to 1/96th of 1 in)
- **mm, cm, in**
- **pt**
 - One point (which is 1/72 of an inch)
- **pc**
 - One pica (which is 12 points)

Relative measurements

- %

percentage values are always relative to another value, for example a length

- em

font size of the element

- rem

font size of the root element

- $1\text{em} = 12\text{pt} = 16\text{px} = 100\%$
- $1\text{in} = 2.54\text{cm} = 25.4\text{mm} = 72\text{pt} = 12\text{pc}$

Relative measurements

- **vw**

viewport's width, 1/100th of the width of the viewport.

- **vh**

viewport's height, 1/100th of the height of the viewport.

Review

- There are times that you will want to hardcode values.
- Fluid/relative measurements will respond to viewport size.

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