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 1in)
- 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

- 1em = 12pt = 16px = 100%
- 1in = 2.54cm = 25.4mm = 72pt = 12pc

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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