

# CSS Grid

- Allows layout for child elements
- In vertical and horizontal grid
- Blocks can "span" multiple "cells"
- We used "areas"
  - With different column sizes
  - Not the only option

# CSS Grid Properties

We will be using some additional CSS properties

Parent element: (with `display: grid;`)

- `grid-template-columns: repeat(12, 1fr);`
  - creates even distribution of space in columns
  - `12` can be any number
- `gap` - puts space between columns/rows

# CSS Properties Child Element

- `grid-column: span 1;`
  - the `1` can be any number
  - Child will span that many cells
  - spans over any gap
- `grid-column: 3 / 6;`
  - the `3` and `6` can be any number
  - think of the `/` as "to"
  - Child will span from "line" 3 to "line" 6
  - lines are the start/end of cell boundaries
  - line 1 is left side of first cell
  - line 2 is right of first cell, left of 2nd

# Not Areas

- We used `grid-template-areas` and `grid-area` before
  - Those are still valid
  - But we aren't using them here
  - Different way of laying them out

# Grid layout without display: grid

- Grid column layout is a design idea
  - CSS Grids are a good way to implement
  - ...but not the only way
  - Can do with flex
  - Can do with percentage widths
- Concept vs implementation
  - different
  - ...but please use css grid

# display: grid impacts direct children

Remember how `display: grid;` works

- only affects direct children
- to match non-child elements to grid
  - make wrapper width 100%
  - recreate the same grid inside wrapper

# Grid column layouts

A common design pattern

- page layout
- aligns to a set of equally spaced columns
- A row will contain items
  - spanning cells
  - evenly or unevenly

→ Admissions

→ Admissions

→ Security

→ Campus Network

→ Visit Campus

→ PhD Education

→ Sustainability

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# Responsive Alignment

Benefits of this column layout

- allows mix of sizes
- but consistent alignment
  - not off by a pixel or two
- don't need to declare areas
  - "rows" can auto wrap
- easily responsive
  - cells evenly expand

# Adaptive Alignment

Another potential benefit

- Change the columns the page has
- and/or the cells an item spans
  - at different breakpoints
- Example:
  - Desktop: 12 columns
  - Tablet: 6 columns
  - Mobile: 1 column

# Adaptive Tablet Example



## UNDERGRADUATE >

- Academic Programs
- Admissions
- Visit Campus



## RESEARCH >

- Health
- Security



## GRADUATE >

- Graduate Programs
- Admissions
- PhD Education



## LIFELONG LEARNING >

- Professional Programs
- Campus Network

# **Adaptive Phone Example**

## RESEARCH >

- Health
- Security
- Sustainability

## LIFELONG LEARNING >

- Professional Programs
- Campus Network
- Admissions



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## 12 Column Grid

- Many grid layouts exist
  - 2 column, 3 column, etc
- 12 column is very common
  - allows options for even spanning:
    - 1, 2, 3, 4, 6, 12
  - allows balanced combos:
    - 3+9, 4+8

## **12 column for desktop, at least**

- Very common to change at smaller resolutions
  - to fewer columns in layout
  - also change spans of items

## Why 12 columns though?

- Good number of options
- 1 cell still meaningful
  - mostly
  - so 24 is "too busy"
- all subjective
- This is why adaptive has fewer columns
  - no columns you don't want to use



# Rule of Thirds

In photography, the **Rule of Thirds** says

- divide picture up into thirds
- vertically and horizontally
- the 4 intersections are more "visually interesting"

## **12 Column Format allows for thirds**

Web design is a little different than photography

- Photos don't scroll

But you can still use that concept

- a 3+6 or 6+3 split
  - puts center of an item at "interesting" point
- a 4+8 or 8+4 can work if edges are interesting



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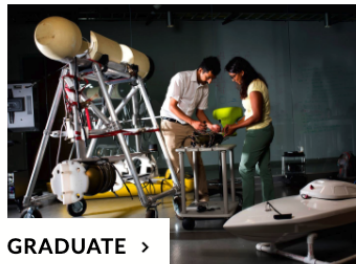
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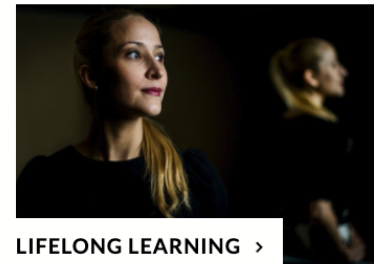
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# Summary - CSS Grids

- We used `grid-template-areas` in the past
- For multi-column layout
  - can use `grid-template-columns`
    - with `repeat()`
    - for evenly sized columns
    - optionally `gap`
- `grid-column`
  - can take `span` to span cells
  - can use `/` to range from/to boundaries

## Summary - 12 column grid

- Many grid layouts exist
  - Can be done without css grids
    - but why?
- 12 column very common in web dev
  - allows for different splits
- grids are naturally responsive

# Summary - Adaptive Grids

Grids can make it easy to have adaptive breakpoints

- change the number of total columns
  - items will "wrap" to different rows
- change the span of different items
  - will be a reasonable size

You can have multiple adaptive breakpoints