

# Programming for the web

An introduction to front-end development with React

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[illegible]

The screenshot shows the BLAST web interface. At the top, there's a navigation bar with 'BLAST' and 'About BLAST' links. Below that, the 'National Library of Medicine' logo and 'National Center for Biotechnology Information' text are visible. The main heading is 'BLAST - Basic Local Alignment Search Tool'. There are tabs for 'Basic', 'Batch', 'Cloud', 'GenBank', 'Genomes', 'Protein', 'RefSeq', 'Trinity', 'Uniprot', and 'Virus'. The 'Basic' tab is selected. The 'Query' section has a text input field containing 'Homo sapiens' and a 'BLAST' button. Below the query field, there are checkboxes for 'Show results' and 'Show alignments'. The 'Show results' checkbox is checked. The 'Show alignments' checkbox is unchecked. The 'Database' section has a dropdown menu set to 'nr' and a 'Database' button. The 'Advanced' section has a 'Show advanced options' link. The 'Results' section has a 'Show results' link. The 'Help' section has a 'Help' link. The 'Footer' section has 'BLAST' and 'About BLAST' links.



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# Goal of this session

- ▶ Introduction to building *interactive* websites

## Activities

- ▶ Familiarize yourself with main building blocks of a website
- ▶ Learn about modern toolchains and frameworks for the web
- ▶ Build your own interactive bioinformatics data visualization

## Material

```
git clone https://github.com/holmrenser/introduction_to_react
```

# Assignment I

Explore two versions of a simple static website:

`example/simple_site`

`example/simple_site_single_file`

- ▶ Open the workshop folder in an IDE (e.g. VSCode)
- ▶ Open `index.html` in a web browser
- ▶ Click the button
- ▶ Explore the code
- ▶ *Discuss*

# Some technical background

# Javascript quirks I

# Modern JS

- ▶ frameworks
- ▶ transpiling
- ▶ component re-use
- ▶ state management
- ▶ AJAX

# Assignment II

Build a React app for visualizing MSAs