

# Setting up Julia

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This guide shows you how to set up your programming environment for this course. You should do so **before** the first class where we use Julia, which will be on the **25th of March**.

If you have issues, let me know, and I'll help!<sup>1</sup>

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## 1 Install Julia

Go to [https://julialang.org/downloads/#official\\_binaries\\_for\\_manual\\_download](https://julialang.org/downloads/#official_binaries_for_manual_download) and choose the installation file of the current stable release corresponding to your operating system. Run it and follow the steps as usual for any other program.

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Now the language Julia is installed on your device: If you go to your install path `\julia-version\bin`, and start `julia.exe`, you could already run codes (writing `1+1` and pressing enter should work for example). This interface is a bit old-school though, so next we are setting up a more user-friendly environment.

## 2 Install VS Code

Visual Studio Code is currently the most popular code editor in the world. Despite being developed by Microsoft, it is really practical and quite universal. For example, apart from Julia coding, I also use it to write  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$  documents, it has a Grammarly extension, it supports GitHub, etc.

Go to <https://code.visualstudio.com/> and download the installer corresponding to your system. Run the installer and follow the steps.

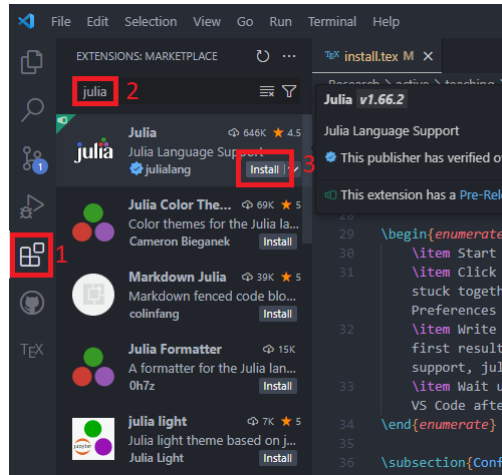
## 3 Link Julia and VS Code

Right after installing, VS Code is quite empty. Most interesting functionalities are supplied by so-called extensions. Since we want to use VS Code to write and run Julia programs, we have to:

### 3.1 Install the Julia extension of VS Code

0. Start VS Code

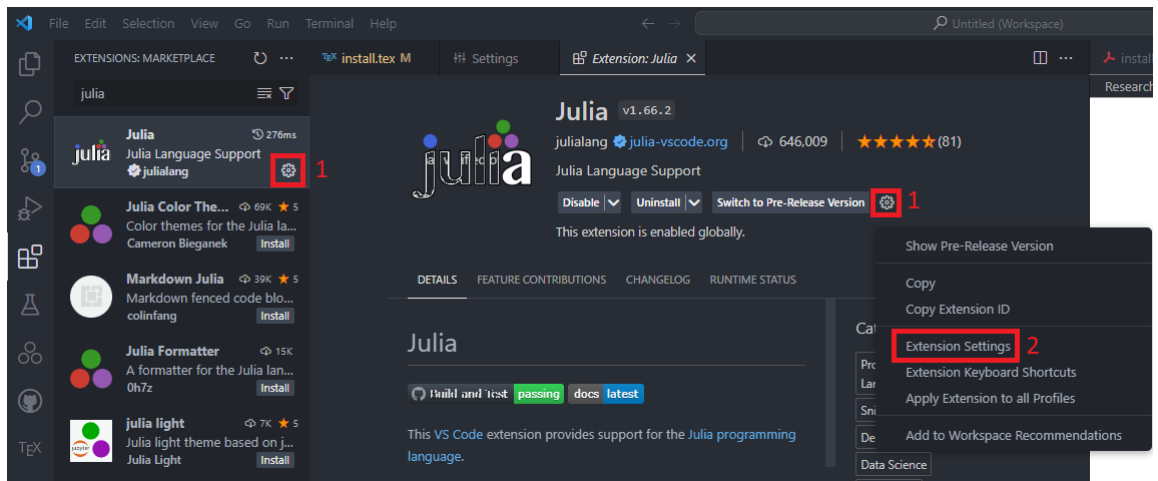
1. Click on the icon with four little squares on the left edge (three stuck together and one separate). Alternatively, go to File -> Preferences -> Extensions.
2. Write 'julia' in the search bar.
3. Click on 'install' next to the first result (which should say things like: julia, julia language support, julialang)
4. Wait until the installation is complete. It is a good idea to restart VS Code after this.



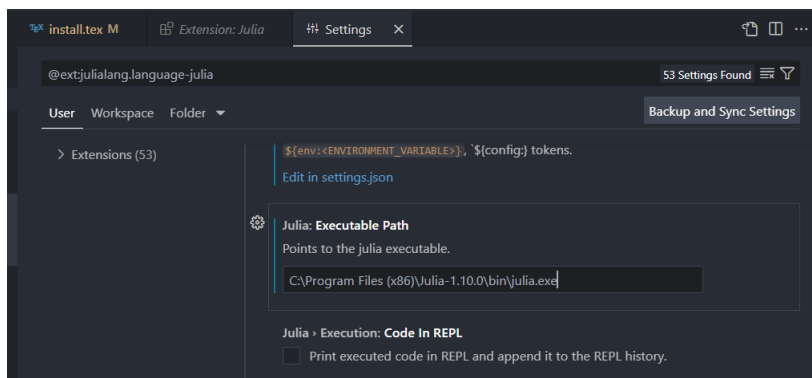
### 3.2 Configure the extension

0. Click on the (now installed) extension.
1. Click on the cogwheel and
2. then 'Extension settings'
3. Scroll to Julia: executable path and copy the path to the julia exe file (which depends on where you chose to install Julia), something like yourinstallpath\julia-version\bin\julia.exe

IMPORTANT: If you have any troubles, double-check that you are using the right path separator characters suiting your operation system. I think Windows works with \, Mac and Linux with /, and \\ might work for all systems in VS Code.



Any of the cogwheels marked by 1 above will work.



Now VS Code knows where to find Julia on your computer, so you are more or less good to go.

### 3.3 Testing

This is how to see if everything works as it should:

1. In VS Code go to File->New File. You should be offered to choose the format on the top of the window. Choose julia (.jl extension). Alternatively, go to File->New Text File and save the file as whatever.jl.
2. Now if you write `1 + 1` in your file, VS Code should treat it as julia code (and color it in some way).

3. While the cursor is active in the line where you wrote  $1 + 1$ , press shift+enter. It should evaluate the line and return 2.

### 3.4 Install Jupyter extension

This is another extension we need to open a particular type of file (Jupyter Notebook). Install it the same way as Julia, but this time write 'Jupyter' in the search bar. After clicking on 'install' you are done, no need to configure anything. Don't be surprised that some dependencies will be installed automatically with this one.

## 4 Optional (but quite useful) settings

If you are done with the steps above, you are ready to start the course and learn to code! Below I am just adding a few settings which in my opinion make it easier to work in VS Code.

### 4.1 Always see whole lines

If a file contains long lines of code, you might not be able to see the whole line at once without using a scroll bar (especially when working in a narrow window). If this annoys you

1. Go to File -> Preferences -> Settings
2. write 'Editor: word wrap' in the search bar
3. change the 'off' to 'on' (if you prefer that, 'bounded' also works, then only too long lines are wrapped around, where 'too long' means lines with more characters than the number at 'Editor: word wrap column'. The latter can be edited too (for Julia the standard is 92, while VS Code default might be something else).)

### 4.2 Don't print everything

By default, if you run any code in Julia, VS Code prints all the objects you create in the process. Often (always?), this is highly annoying. Normally we only want to print stuff that we think is interesting. To fix this

1. Go to File -> Preferences -> Settings
2. write 'julia execution result type' in the search bar
3. change the 'both' to 'inline, errors in REPL'. ('inline' also solves the issue, but also gives less directly visible information on errors)

## 5 If you are stuck

1. Check this and this link, in case you find them easier to follow than this document.
2. Write to me (Zoltan.Racz@hhs.se), I will be happy to help. It's good to ask for help in time so that I can clarify this document and upload new versions for everyone else to see.