HPC-course instructions

In order to attend the course and practice the exercises, each participant is required to **bring a laptop computer**. This computer must be configured to have the following software:

- A **C compiler** (GCC, Intel compiler, MSVC++, etc.)
- An implementation of the **MPI library** (OpenMPI, MPICH, etc.)
- A **text editor** or a C IDE (gedit, notepad++, etc.)

If you don't know how to install this, here are some guidelines for different platforms (from most convenient to least convenient for this class).

Note that the WiFi bandwith will be limited during the course and you are required to install and check your machine ahead of the class.

1.1. GNU/Linux

Using a shell terminal:

- On Ubuntu/Debian/Mint or compatible:

```
$ sudo apt-get install  build-essential libopenmpi-dev openmpi-bin gedit
valgrind
```

- On CentOS/RedHat or compatible:

```
$ sudo yum group install 'Development Tools'
$ sudo yum install openmpi gedit valgrind
```

- On ArchLinux/Manjaro or compatible:

```
$ sudo pacman -S gcc openmpi gedit valgrind
```

1.2. MacOS

Using a terminal:

- If you do not already have it, install homebrew

```
$ /usr/bin/ruby -e "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/master/install)"
```

- Install openmpi with gcc-8 as default compiler

```
$ export HOMEBREW_CC=gcc-8
$ export HOMEBREW_CXX=g++-8
$ brew install openmpi --build-from-source
```

1.3. Windows

- For Windows 10, install the linux subsystem
  - Follow the official instructions https://docs.microsoft.com/en-us/windows/wsl/install-win10
  - Be sure to chose ubuntu

    - Then follow the instruction for Linux Ubuntu (above)
- For other versions of Windows, you can install Ubuntu in a Virtual Machine:
    - Install VirtualBox on your Laptop
    - Download Ubuntu and configure a virtual machine with Ubuntu
    - Follow the instructions above to install the required software.
    - The exact procedure will vary with the version of Windows or VirtualBox, use Google search to find accurate instructions.