PhysiCell Preflight Checklist

1 g++/OpenMP development environment (including make, etc.)

1.1 OSX

While many OSX installations have a LLVM/clang (and alias "g++" to clang), by default they do not support OpenMP as needed for PhysiCell's parallelization. Please follow the (preferred) tutorial at:

http://www.mathcancer.org/blog/setting-up-gcc-openmp-on-osx-homebrew-edition/

If you prefer MacPorts, see: http://www.mathcancer.org/blog/setting-up-gcc-openmp-on-osx-macports-edition/

Note: Even if you have a working g++ compiler with OpenMP support, **Mac users must set a system variable** (`PHYSICELL_CPP`) to ensure that Makefiles work properly. Please see the end of the tutorials above to set this variable.

1.2 Windows

PhysiCell is designed to use Linux-like Makefiles and standard g++ on Windows (or any platform) without modification, and without need for virtual environments like Cygwin. To set up a full g++ environment (including support for the command line, utilities like make, etc.), follow the tutorial at:

http://www.mathcancer.org/blog/setting-up-a-64-bit-gcc-environment-on-windows/

1.3 Linux

Most Linux distributions will already include a capable g++ compiler. If yours is missing, please use your distro's package manager.

2 Text / code editor

You will need a text or code editor to work on PhysiCell projects. Some good choices include:

1. Notepad++ (Windows): https://notepad-plus-plus.org/downloads/
2. Spyder (bundled with Anaconda): https://www.spyder-ide.org/
3. nedit (Linux – see package manager)
4. CLion (multi-platform): https://www.jetbrains.com/clion/
5. Visual Studio Code (multi-platform): https://code.visualstudio.com/

3 ImageMagick

We use ImageMagick for image processing (e.g., rescaling, simple animations). Download for any platform at:

https://imagemagick.org/script/download.php

4 Python / Jupyter distribution

We use Python (3.x) and Jupyter for most visualization and data analysis, although we have also written Matlab support. If you do not have Python installed, we recommend the Anaconda (3.x) distribution, available at:

https://www.anaconda.com/distribution/#download-section

5 nanoHUB account

We use nanoHUB for cloud-hosted PhysiCell models. You can register for a free account at:

https://nanohub.org/register/

We suggest using a Google login.

6 GitHub (optional, but highly recommended)

While we won't make extensive use of GitHub for the coding exercises, it is necessary for some steps in creating and deploying a cloud-hosted PhysiCell model on nanoHUB. See: https://github.com/join?source=header-home

7 Video Encoder (optional)

While animated GIFs are fine for quick visualizations, MPEG4-compressed movies are ideal for publications and sharing. See:

mencoder: http://www.mplayerhq.hu/design7/dload.html OR **ffmpeg:** https://www.ffmpeg.org/download.html