Getting set up for TWS-AFS nimble workshop

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Thanks for signing up for the workshop on hierarchical modeling with `nimble` at the 2019 TWS-AFS meeting.

This note covers what you need to do to be set up for the workshop.

You should have a computer with:

- a relatively up-to-date version of R.
- the following packges:
    - nimble
    - mcmcplots
    - devtools (just in case)
- a working C++ compiler (see below).
- ability to install additional R packages if necessary.

During the day of the workshop, you may need to install an additional R package or two. If so, I'll give you instructions on that.

Installing and checking a C++ compiler

`nimble` generates and compiles C++ on your machine. You don't need to know anything about C++, but you do need to get it installed.

The best resource on this is Chapter 4 of the NIMBLE User Manual: https://r-nimble.org/html_manual/cha-installing-nimble.html. (That text is a link, but this pdf doesn't automatically show it that way.)

Some additional notes:

- On linux, often you will have working compiler tools automatically.
- On OS X, you need to be sure you have XCode command-line tools installed. If you have newly installed XCode, you might need to open it once to give it a one-time authorization.
- On Windows, be sure the checkbox to modify the PATH is checked when you install Rtools.exe.

Test code

To see if your computer is set up correctly and your C++ compiler works for `nimble`, please try the following:

```r
library(nimble)
m <- nimbleModel(nimbleCode({x ~ dnorm(0, 1)}), inits = list(x = 0))
cm <- compileNimble(m)
MCMC <- buildMCMC(m)
CMCMC <- compileNimble(MCMC, project = m)
CMCMC$run(100)
```

You should see output similar to the following:

```r
library(nimble)
```

```
## nimble version 0.8.0 is loaded.
## For more information on NIMBLE and a User Manual,
## please visit http://R-nimble.org.

##
## Attaching package: 'nimble'

## The following object is masked from 'package:stats':
##
##     simulate
```

```r
m <- nimbleModel(nimbleCode({x ~ dnorm(0, 1)}), inits = list(x = 0))
```

```
## defining model...

## building model...

## setting data and initial values...

## running calculate on model (any error reports that follow may simply reflect missing values in model
## checking model sizes and dimensions...
## model building finished.
```

```r
cm <- compileNimble(m)
```

```
## compiling... this may take a minute. Use 'showCompilerOutput = TRUE' to see C++ compilation details.
## compilation finished.
```

```r
MCMC <- buildMCMC(m)
CMCMC <- compileNimble(MCMC, project = m)
```

```
## compiling... this may take a minute. Use 'showCompilerOutput = TRUE' to see C++ compilation details.
## compilation finished.
```

```r
CMCMC$run(100)
```

```
## |-------------|-------------|-------------|-------------|
## |-------------------------------------------------------|

## NULL
```

Problems?

If you have any problems, please email me.

Usually it works smoothly.

If it doesn't, it can be difficult to diagnose problems specific to one machine, but I will try.