



### Setting up LaTeX, R and sweave on a Windows operating system

Sweave requires a working installation of LaTeX, GhostScript, R and a LaTeX editor of your choice. If you have not used LaTeX and/or R before, please follow these steps.

1. MiKTeX is one of a number of LaTeX packages for Windows XP. Point your browser to

<http://miktex.org/2.7/setup>,

scroll down to the headline “Installing a basic MiKTeX system”, select a mirror and hit download. Once the file has downloaded, open it and follow the instructions on the screen to install MiKTeX on your computer.

2. GhostScript is a software package required to produce PDFs from your LaTeX code. This link should get you started on the download of GhostScript for Windows:

<http://mirror.cs.wisc.edu/pub/mirrors/ghost/GPL/g864/g864w32.exe>

Double-click the downloaded file and follow the instructions to install GhostScript on your system.

3. TeXnicCenter is a LaTeX editor. It will allow you to write LaTeX code and provide you with a button to translate it into a PDF. Opening

<http://texniccenter.org/resources/downloads/29-downloads/12-texniccenter-installer>

will get you started on the downloaded. Once it has finished, open the file and again, follow the instructions on the screen to install the program.

Now start TeXnicCenter. It will ask for the location of your LaTeX installation. Point it to “miktex\bin” within the folder into which you installed MiKTeX in step 1.

4. TeXnicCenter uses output profiles to define a certain way of producing e.g. a PDF file from your LaTeX code. Download the following profile,

[http://gk.wiwi.uni-jena.de/data/summerschool2009/course\\_material/Sweave/latex-ps-pdf.tco](http://gk.wiwi.uni-jena.de/data/summerschool2009/course_material/Sweave/latex-ps-pdf.tco)

start TeXnicCenter and hit Alt-F7 to open the output profile preferences. Click “import” at the bottom of the window and select the profile you have just downloaded.

Unfortunately, the profile will not work on your system yet. You have to adjust a total of six path names.

Select the newly imported profile “LaTeX => PS => PDF” from the list on the left-hand side. The first three path names are in the LaTeX tab, which should have been selected automatically.

Currently the “Path to the (La)TeX compiler” should be “latex.exe”. **Depending on the exact path you chose to install MiKTeX to**, you have to change it to something like “C:\Program Files\MiKTeX 2.7\miktex\bin\latex.exe”. Clicking the “...” button next to the path name lets you browse for the file.

Make similar changes to “Path to BibTeX executable” and “Path to MakeIndex executable”.

Now, switch to the “Postprocessor” tab. First, select “DviPs (PDF)” and change “executable” to something like “C:\Program Files\MiKTeX 2.7\miktex\bin\dvips.exe”.

Select “Ghostscript (ps2pdf)” and change the executable to something like “C:\Program Files\ghostscript\gs8.62\bin\gswin32.exe”. **Again, the exact path to use depends on the name of the directory that contains your GhostScript installation.**

The last pathname is that for your preferred PDF viewer, most likely Adobe Reader. Select the “Viewer” tab and change “Path of executable” to something like “C:\Program



Files\Adobe\Reader 9.0\Reader\AcroRd32.exe". Once you are done, click "OK" and close TeXnicCenter for the moment.

Now that you have a basic LaTeX installation, let's turn to R.

5. R is the statistical software, which will be used for Oliver Kirchkamp's course during the summer school. This link will start the download of R for Windows:

<http://ftp5.gwdg.de/pub/misc/cran/bin/windows/base/R-2.9.1-win32.exe>

Once the download has finished, open the file and follow the instructions to install R on your computer.

Having set up LaTeX and R, we will now turn to Sweave itself. Sweave consists of a package for R and a package for LaTeX. All necessary components come with your R installation.

6. Download this example file and open it using TeXnicCenter:

[http://gk.wiwi.uni-jena.de/data/summerschool2009/course\\_material/Sweave/example.Snw](http://gk.wiwi.uni-jena.de/data/summerschool2009/course_material/Sweave/example.Snw)

This is the file that you will be editing while writing your paper and R code.

7. Start R and use the command `setwd()` to set your working directory to the directory that contains your "example.Snw" file. The command will look like this:

```
setwd("C:/Documents and Settings/severin/Documents/sweave")
```

The example file uses a package called stats. Install it by issuing:

```
install.packages("stats")
```

Select a CRAN mirror near you and click "OK".

8. Every time you want to produce a new PDF from your Sweave file, you will have to do two things.
  - a. In R issue the command:  
`Sweave("example.Snw", stylepath=TRUE)`
  - b. In TeXnicCenter open the file "example.tex" and hit Ctrl-Shift-F5 to build and view the current file. **Please note: Do not edit "example.tex", as R will overwrite its contents and your changes will be lost, when you use the Sweave command again. Instead, edit "example.Snw".**

Should you run into any problems, please approach Severin Weingarten. He will be glad to help you to set up Sweave on your computer.