



Working with dates

Jeffrey Leek
Johns Hopkins Bloomberg School of Public Health

Starting simple

```
d1 = date()
d1
```

```
[1] "Sun Jan 12 17:48:33 2014"
```

```
class(d1)
```

```
[1] "character"
```

Date class

```
d2 = Sys.Date()  
d2
```

```
[1] "2014-01-12"
```

```
class(d2)
```

```
[1] "Date"
```

Formatting dates

%d = day as number (0-31), %a = abbreviated weekday, %A = unabbreviated weekday, %m = month (00-12), %b = abbreviated month, %B = unabbreviated month, %y = 2 digit year, %Y = four digit year

```
format(d2, "%a %b %d")
```

```
[1] "Sun Jan 12"
```

Creating dates

```
x = c("1jan1960", "2jan1960", "31mar1960", "30jul1960"); z = as.Date(x, "%d%b%Y")  
z
```

```
[1] "1960-01-01" "1960-01-02" "1960-03-31" "1960-07-30"
```

```
z[1] - z[2]
```

```
Time difference of -1 days
```

```
as.numeric(z[1]-z[2])
```

```
[1] -1
```

Converting to Julian

```
weekdays(d2)
```

```
[1] "Sunday"
```

```
months(d2)
```

```
[1] "January"
```

```
julian(d2)
```

```
[1] 16082  
attr(,"origin")  
[1] "1970-01-01"
```

Lubridate

```
library(lubridate); ymd("20140108")
```

```
[1] "2014-01-08 UTC"
```

```
mdy("08/04/2013")
```

```
[1] "2013-08-04 UTC"
```

```
dmy("03-04-2013")
```

```
[1] "2013-04-03 UTC"
```

<http://www.r-statistics.com/2012/03/do-more-with-dates-and-times-in-r-with-lubridate-1-1-0/>

Dealing with times

```
ymd_hms("2011-08-03 10:15:03")
```

```
[1] "2011-08-03 10:15:03 UTC"
```

```
ymd_hms("2011-08-03 10:15:03",tz="Pacific/Auckland")
```

```
[1] "2011-08-03 10:15:03 NZST"
```

```
?Sys.timezone
```

<http://www.r-statistics.com/2012/03/do-more-with-dates-and-times-in-r-with-lubridate-1-1-0/>

Some functions have slightly different syntax

```
x = dmy(c("1jan2013", "2jan2013", "31mar2013", "30jul2013"))
wday(x[1])
```

```
[1] 3
```

```
wday(x[1],label=TRUE)
```

```
[1] Tues
Levels: Sun < Mon < Tues < Wed < Thurs < Fri < Sat
```

Notes and further resources

- More information in this nice lubridate tutorial <http://www.r-statistics.com/2012/03/do-more-with-dates-and-times-in-r-with-lubridate-1-1-0/>
- The lubridate vignette is the same content <http://cran.r-project.org/web/packages/lubridate/vignettes/lubridate.html>
- Ultimately you want your dates and times as class "Date" or the classes "POSIXct", "POSIXlt". For more information type `?POSIXlt`