universität innsbruck

Institut für Geographie

R: Grundkonzepte

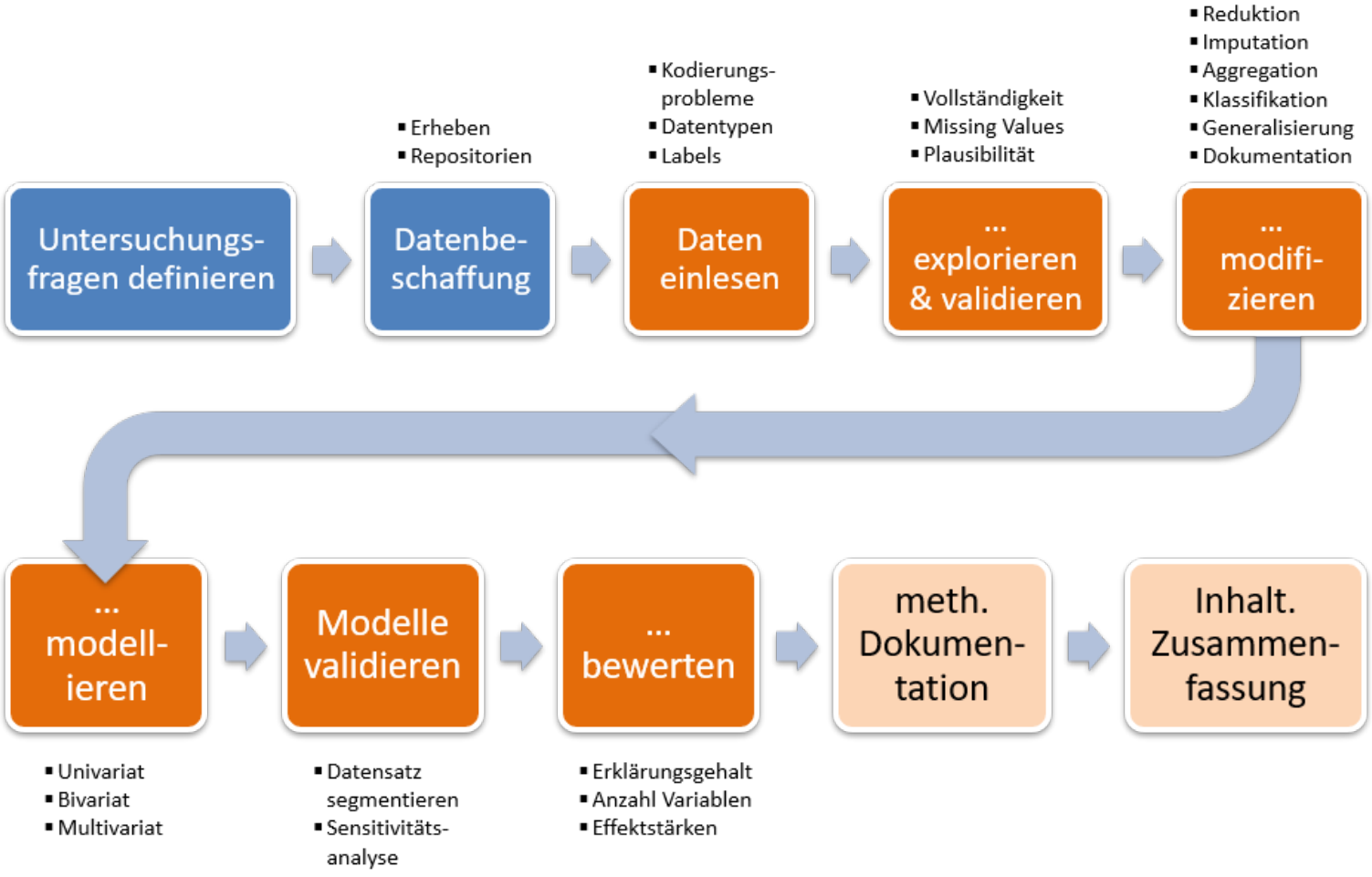
716408 | Sozialwiss. Methoden – How 2 do Things with Numbers

KMH

SS 22 (updated: 2022-05-04)

Wozu Statistikpakete?

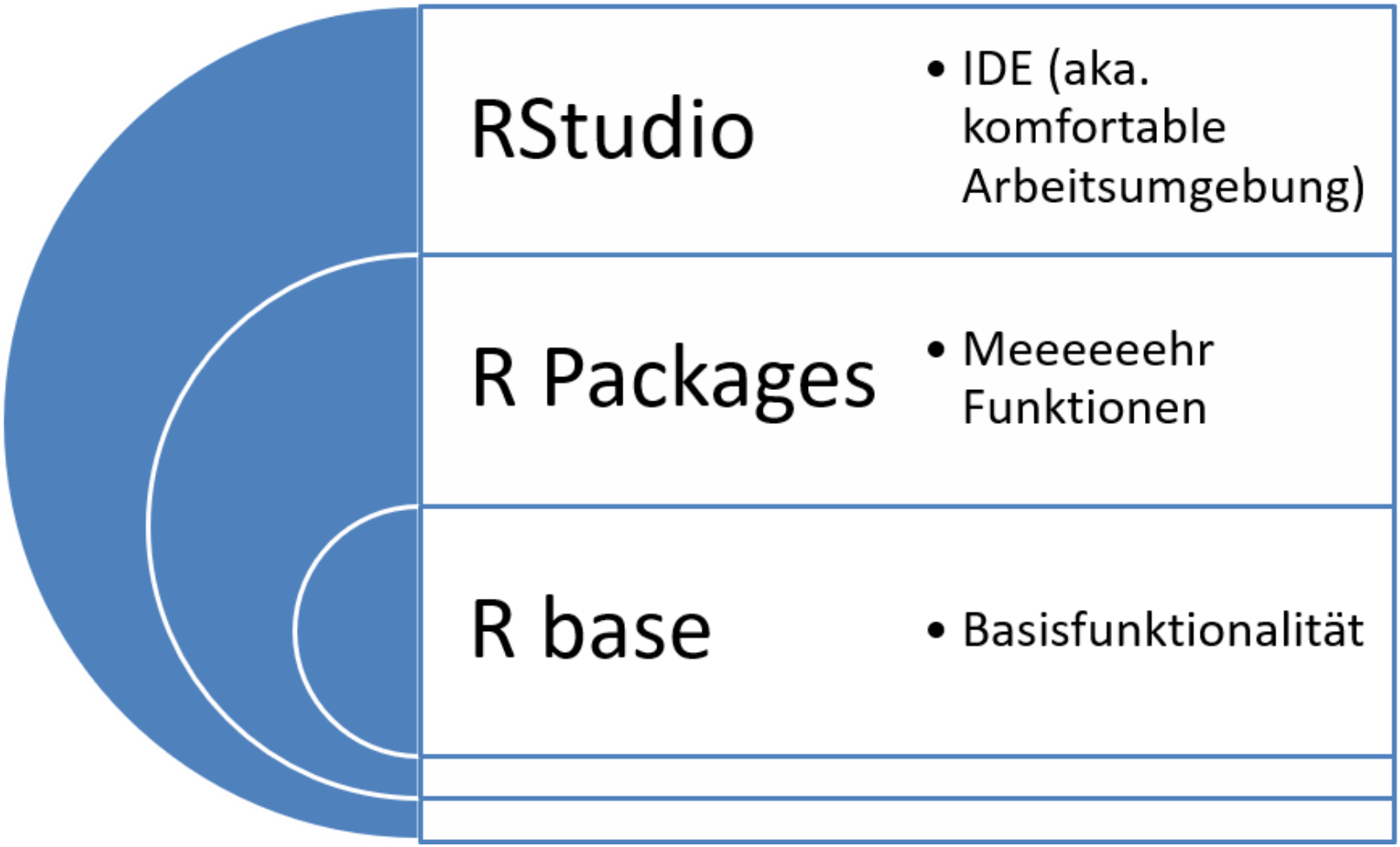
Ein idealtypischer Ablauf



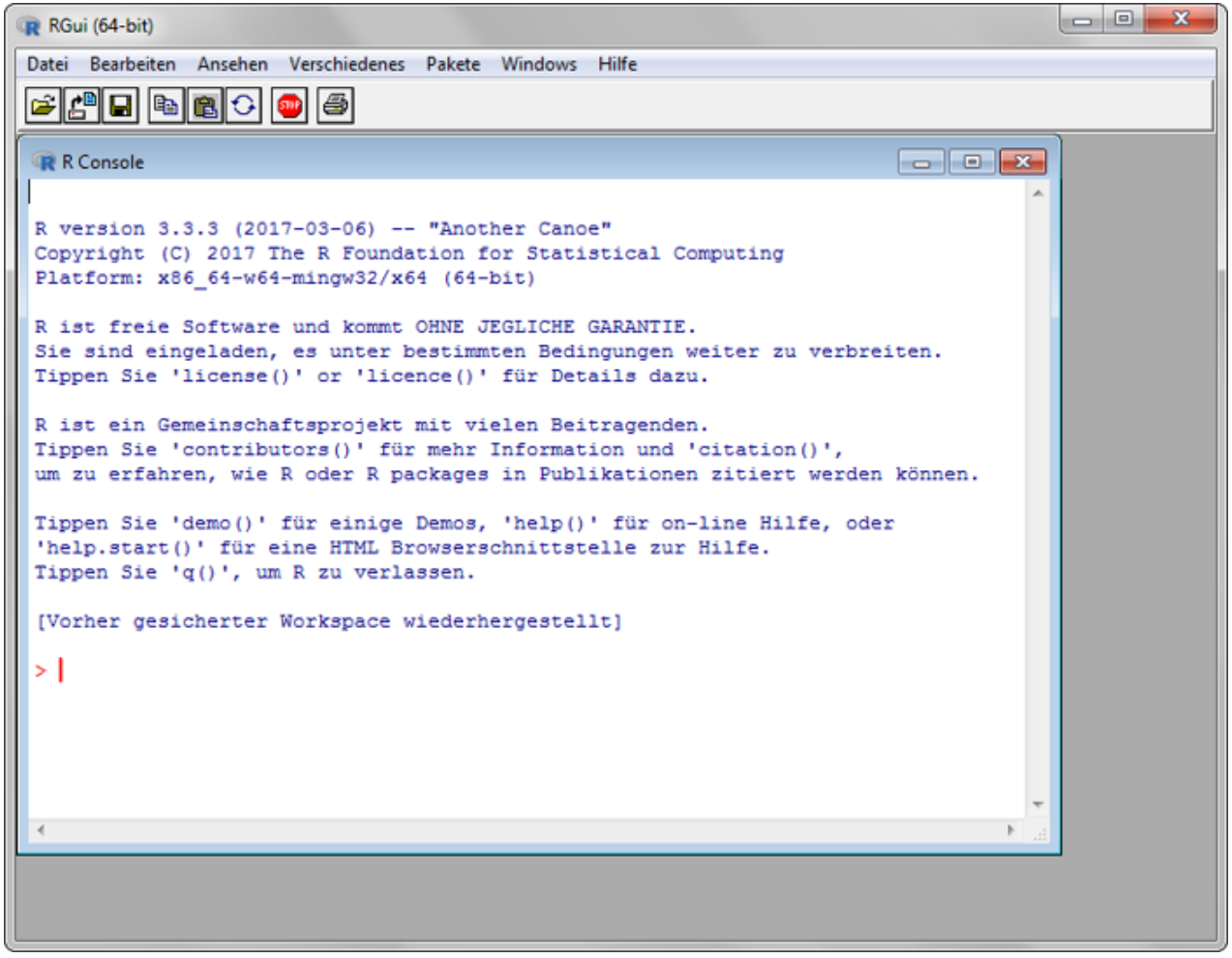
(Höferl, 2021, CC BY)

How to?

Base R, Packages & RStudio … all you need



Der R-Interpreter (aka. „R-Console“)



Grundlegende arithmetische Operatoren in R

Operator	Description
+	addition
-	subtraction
*	multiplication
/	division
^ or **	exponentiation
x %% y	modulus (x mod y) 5%%2 is 1
x %/% y	integer division 5%/%2 is 2

Function	Description
abs(*x*)	absolute value
sqrt(*x*)	square root
ceiling(*x*)	ceiling(3.475) is 4
floor(*x*)	floor(3.475) is 3
trunc(*x*)	trunc(5.99) is 5
round(*x*, **digits**=*n*)	round(3.475, digits=2) is 3.48
signif(*x*, **digits**=*n*)	signif(3.475, digits=2) is 3.5
cos(*x*), **sin**(*x*), **tan**(*x*)	also acos(*x*), cosh(*x*), acosh(*x*), etc.
log(*x*)	natural logarithm
log10(*x*)	common logarithm
exp(*x*)	e^*x*

Grundlegende logische Operatoren in R

Operator	Description
<	less than
<=	less than or equal to
>	greater than
>=	greater than or equal to
==	exactly equal to
!=	not equal to
!x	Not x
x | y	x OR y
x & y	x AND y
isTRUE(x)	test if X is TRUE

Grundlegende statistische Operatoren in R

Function	Description
mean(*x*, **trim**=0, **na.rm**=FALSE)	mean of object x # trimmed mean, removing any missing values and # 5 percent of highest and lowest scores mx <- mean(x,trim=.05,na.rm=TRUE)
sd(*x*)	standard deviation of object(x). also look at var(x) for variance and mad(x) for median absolute deviation.
median(*x*)	median
quantile(*x*, *probs*)	quantiles where x is the numeric vector whose quantiles are desired and probs is a numeric vector with probabilities in [0,1]. # 30th and 84th percentiles of x y <- quantile(x, c(.3,.84))
range(*x*)	range
sum(*x*)	sum
diff(*x*, **lag**= *1*)	lagged differences, with lag indicating which lag to use
min(*x*)	minimum
max(*x*)	maximum
scale(*x*, **center**=TRUE, **scale**=TRUE)	column center or standardize a matrix.

Lost in R(?)

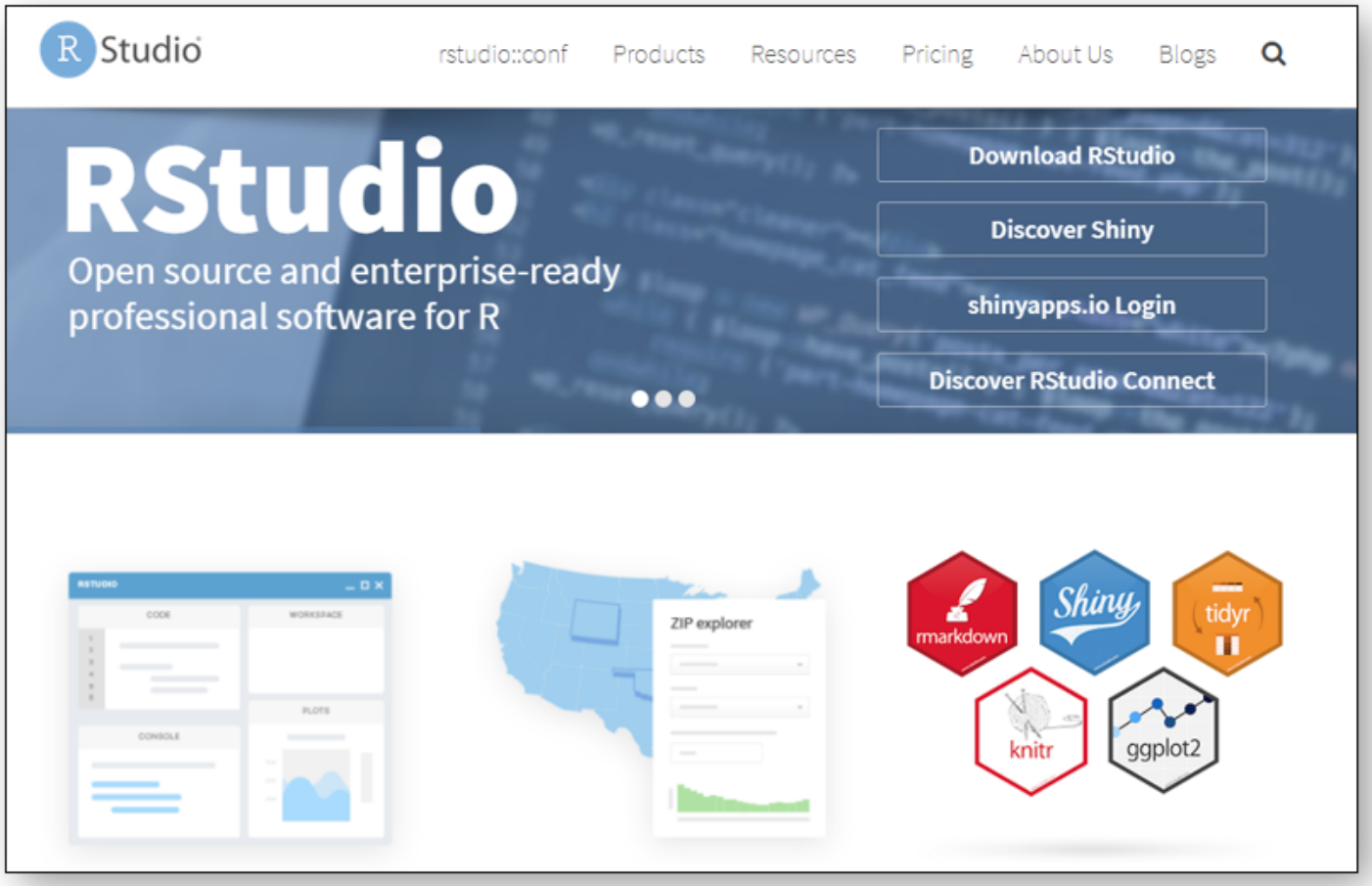
Eine Auswahl für Einsteigerinnen und Einsteiger:

- https://link.springer.com/book/10.1007/978-3-8348-9677-3
- https://www.statmethods.net/index.html
- https://www.uni-muenster.de/Stochastik/lehre/SS09/PrakStat/Skript.pdf

Geht's auch einfacher?

Komfortabler: R Studio

- https://www.rstudio.com/



Aufwärmrunde in RStudio

- **Kapitel „Orientierung“** im Kurs „R für Psychos“ von Lukas Burk & Tobias Anton: https://r-intro.tadaa-data.de/book/orientierung.html