

HWK1

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STA465: Theory and Methods for Complex Spatial Data

Instructor: Dr. Vianey Leos Barajas

QUICK ANNOUNCEMENT:

- Homework 1 has been updated
- Now due Wednesday, Feb 3rd, 23:59 EST (Time in Toronto)
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- Let's go through it together.

BAYESIAN DATA ANALYSIS

.....

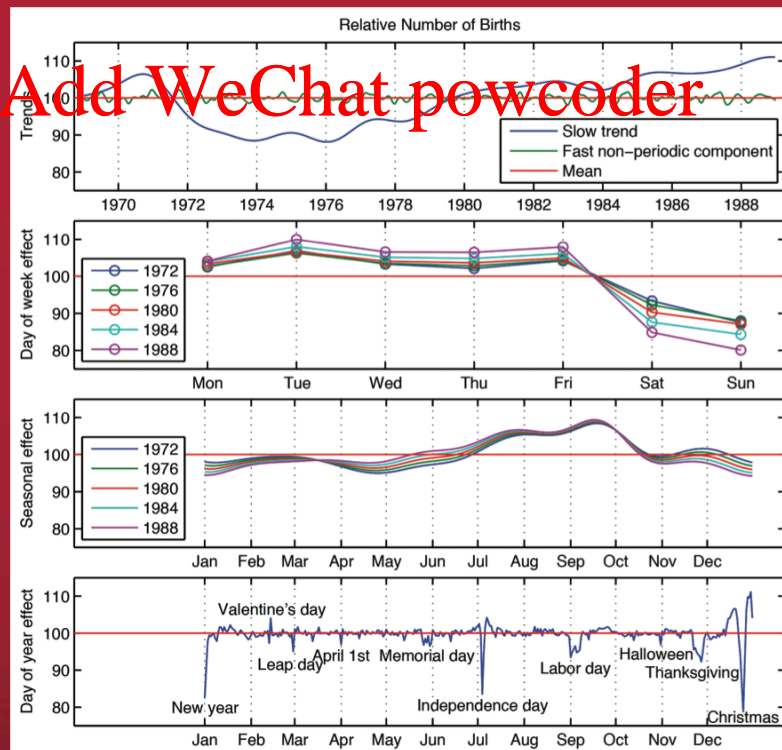
Book Website: <http://www.stat.columbia.edu/~gelman/book/>

PDF of book: <http://www.stat.columbia.edu/~gelman/book/BDA3.pdf>

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Third Edition
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Andrew Gelman, John B. Carlin, Hal S. Stern,
David B. Dunson, Aki Vehtari, and Donald B. Rubin

RSTAN

- `library(rstan)`
- <https://mc-stan.org/rstan/>
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<https://powcoder.com>
- <https://github.com/stan-dev/rstan/wiki/RStan-Getting-Started>
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<https://cran.r-project.org/web/packages/rstan/vignettes/stanfit-objects.html>

Accessing the contents of a stanfit object

Stan Development Team

2020-07-27

- Posterior draws
- Posterior summary statistics and convergence diagnostics
- Sampler diagnostics
- Model code
- Initial values
- (P)RNG seed
- Warmup and sampling times

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This vignette demonstrates how to access most of data stored in a stanfit object. A stanfit object (an object of class "stanfit") contains the output derived from fitting a Stan model using Markov chain Monte Carlo or one of Stan's variational approximations (meanfield or full-rank). Throughout the document we'll use the stanfit object obtained from fitting the Eight Schools example model:

```
library(rstan)
fit <- stan_demo("eight_schools", refresh = 0)
```

```
class(fit)
```

```
[1] "stanfit"
attr(,"package")
[1] "rstan"
```

BONUS POINT FOR EVERYONE + QUESTIONS

- Everyone gets +1 points on the homework this round.
- +1 — equals 5% of the homework grade and 1% point of your overall grade
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- Feel free to help each other out on the discussion board, share tips, etc. Everyone's final homework writeup will look different and there's nothing wrong with helping each other.
Do not share complete solutions.

OFFICE HOURS — FOR HOMEWORK WEEKS

- Friday, Jan 29th — 1:30 - 3:30 p.m. (2 hours)
- TA will answer questions on discussion board (no office hours)

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FRIDAY, JAN 29 (SPATIAL MAPS)

- Geocomputation with R book
 - <https://geocompr.robinlovelace.net>
 - R package: 'sf' among others
 - Assignment Project Exam Help
 - <https://powcoder.com>
- Learning about structures for spatial data
 - Add WeChat powcoder
- Looking through publicly available data sets and understanding common formats