

Biostatistics 411 Course Business  
<http://rem.ph.ucla.edu/biostat411>

Robert Weiss, Instructor

Office: CHS 51-269  
Office Hours: After class until 2:30  
Finals week Mar 18, 19 Monday, Tuesday 10:00–10:50  
E-mail: robweiss at ucla.edu  
Mail box: 51-254

Jiaheng Qiu, Teaching Assistant

Office: A1-228  
Office Hours: Tuesday 2:00 – 2:50 in room 73-320  
Friday 2:00 – 2:50 in room 73-320  
Finals week Mar 18, 19 Monday, Tuesday 2:00–2:50 in room 73-320  
E-mail: chiujh at ucla.edu  
Mail folder: 51-254

Class:

Lectures	MW 12:00-1:50	Room 41-268
Lab 1:	Thu 9:00-9:50	Room A1-241
Lab 2:	Fri 10:00-10:50	Room A1-241

Labs will meet the first week on Jan 10-11

Note: This pdf will likely be updated, please check on the web, particularly by the end of the first week.

**Textbooks** The text is Applied Longitudinal Analysis, **2nd edition** by Fitzmaurice, Laird and Ware. There are a number of additional books in this general area that you might find useful if you are looking for another text.

Fitzmaurice, G.M., Laird, N. M. and Ware, J. H. (2011). Applied Longitudinal Analysis, 2nd edition. Wiley. Our excellent text.

Weiss, R. E. (2005). Modeling Longitudinal Data. Springer. Used for Biostat 236. A source for much of the material this quarter. Covers continuous longitudinal data deeply and extensively. Extensive labs for learning SAS available from [http://rem.ph.ucla.edu/rob/rm/new/index.html#Computer\\_Labs](http://rem.ph.ucla.edu/rob/rm/new/index.html#Computer_Labs). Strongly recommended that Biostat MS, DrPH and PhD students read this in addition to the main text.

- Singer, Judith D. (1998). Using SAS PROC MIXED to Fit Multilevel Models, Hierarchical Models, and Individual Growth Models. *Journal of Educational and Behavioral Statistics*, Vol. 23, No. 4, 323-355. Available at <http://gseweb.harvard.edu/~faculty/singer/Papers/UsingProcMixed.pdf> (note: should be spaces, not underscores in pdf title) and a better copy at <http://jeb.sagepub.com/cgi/reprint/23/4/323> or <http://www.jstor.org/stable/pdfplus/1165280.pdf>. Recommended as an introduction to Proc Mixed but be alert to the somewhat different approach to language and model specification.
- Snijders, Tom A. B. and Bosker, Roel (1999). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*.

Additional well known and well respected books in our general area.

- Gelman, Andrew and Hill, Jennifer (2006). *Data Analysis Using Regression and Multilevel/Hierarchical Models* (Paperback). Cambridge University Press. Modern approaches. I recommend this book for students looking for additional information after the end of the course.
- Hedeker, Donald and Gibbons, Robert D. (2006). *Longitudinal Data Analysis*. Wiley. Old fashioned approaches by two highly respected practitioners.
- Verbeke, Geert and Molenberghs, Geert (2001). *Linear Mixed Models for Longitudinal Data*. Springer. A friendly book, if a touch unbalanced.
- Molenberghs, Geert and Verbeke, Geert (2005). *Models for Discrete Longitudinal Data*. Springer. Two active widely known authors.
- Littell, Ramon C., Milliken, George A., Stroup, Walter W., Wolfinger, Russell D. and Schabenberber, Oliver (2006). *SAS for Mixed Models, Second Edition* (Paperback). SAS Publications, Cary NC. A classic, revised. Good source of SAS code examples. Recommended.
- Singer, Judith D. and Willett, John B. (2003). *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence*. Oxford University Press. From the education perspective. A little odd as it combines longitudinal data and survival data, also more from the multi-level models perspective and a touch old fashioned.
- Diggle, Peter, Heagerty, Patrick, Liang, Kung-Yee, and Zeger, Scott (2002). *Analysis of Longitudinal Data, 2nd edition*. Oxford University Press. Much more advanced than our course. Emphasis on discrete data.

## Grading

The grade will be based upon homework and projects.

Homework	30%
Labs	20%
Projects	50%

## Homework Policy

All work you turn in must be your own. You are allowed to discuss homework problems and their solutions with your colleagues. You are not allowed to share files/writing/computer code/plots of any sort. If permission is granted to collaborate on a particular assignment, turn in a single homework with all collaborator's names on the front page.

It is mandatory (in class, in academia, in life) to reference any and all external sources.

## Course Handouts

**There will be NO Handouts in class. All handouts, computer labs, course notes and homework will be placed on the course web site <http://rem.ph.ucla.edu/biostat411/>. Computer labs and course notes are in a restricted directory that is accessible via password.** You are welcome to exchange labs, lecture notes and handouts with other class members, but not with people outside the class.

**You are responsible for downloading and printing all handouts yourself.**

Please bring your notes to class.

## Statistics Package

This course will only use SAS as the course statistics package. You need access to SAS on a computer outside the lab to work on assignments and projects outside of lab times.

SAS is available to students in the A-level lab classroom only during labs. SAS is available on all computers in the TLC on the 2nd floor of the Biomed library. (See <http://unitproj.library.ucla.edu/biomed/tlc/>). A user account (separate from the Bruin account) is required and is freely available to all medical, public health, nursing, ACCESS, neuroscience students and CHS residents, interns and fellows. The application is available at [http://www2.library.ucla.edu/pdf/tlc\\_application.pdf](http://www2.library.ucla.edu/pdf/tlc_application.pdf) or inside the lab. Anyone with a library card (UCLA ID) can also check out laptops from the Biomed library that have SAS installed. Some students may be able to obtain a copy of SAS for their own laptop; this is recommended; please contact your SAO for more information.