

Introduction to Multi-level Models

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1 Introduction to multi-level models for correlated data

For more, see:

- David Rocke¹'s materials from the 2021 edition of this course²
 - May 25 - June 1 lectures
- Other UC Davis courses:
 - EVE 225³: “Linear Mixed Modeling in Ecology & Evolution”
 - * usually taught every other winter or spring by Kate Laskowski⁴
 - * materials, including syllabus and lecture videos: <https://laskowskilab.faculty.ucdavis.edu/teaching-2/>
 - STA/BST 224⁵: “Analysis of Longitudinal Data”
 - * usually taught every spring by Shuai Chen⁶
 - * should be accessible after completing Epi 204
 - EPI 226⁷: “Methods for Longitudinal & Repeated Measurement Data”
 - * usually taught by Heejung Bang⁸
 - PSC 205D⁹: “Multilevel Models”
 - PSC 205G¹⁰: “Applied Longitudinal Data Analysis”
 - STA 101¹¹: “Advanced Applied Statistics for the Biological Sciences”
 - STA 207¹²: “Statistical Methods for Research II”
 - STA 232B¹³: “Applied Statistics II”
 - * usually taught every winter by Jiming Jiang¹⁴
 - PLS 207¹⁵: “Applied Statistical Modeling for the Environmental Sciences”
 - EDU 236¹⁶: “Application of Hierarchical Linear Models in Education Research”
 - HDE 205¹⁷: “Longitudinal Data Analysis”
- Books:
 - Dobson and Barnett (2018) Chapter 11¹⁸

¹<https://dmrocke.ucdavis.edu/>

²<https://dmrocke.ucdavis.edu/Class/EPI204-Spring-2021/EPI204-Spring-2021.html>

³<https://catalog.ucdavis.edu/search/?q=EVE+225>

⁴<https://eve.ucdavis.edu/people/kate-laskowski>

⁵<https://catalog.ucdavis.edu/search/?P=BST%20224>

⁶<https://shuaichen.weebly.com/>

⁷<https://catalog.ucdavis.edu/search/?P=EPI+226>

⁸<https://biostat.ucdavis.edu/people/heejung-bang>

⁹<https://catalog.ucdavis.edu/search/?q=PSC+205D>

¹⁰<https://catalog.ucdavis.edu/search/?q=PSC+205G>

¹¹<https://catalog.ucdavis.edu/search/?q=STA+101>

¹²<https://catalog.ucdavis.edu/search/?q=STA+207>

¹³<https://www.stat.ucdavis.edu/~jiang/sta232b.html>

¹⁴<https://www.stat.ucdavis.edu/~jiang/>

¹⁵<https://catalog.ucdavis.edu/search/?q=PLS+207>

¹⁶<https://catalog.ucdavis.edu/search/?q=EDU+236>

¹⁷<https://catalog.ucdavis.edu/search/?q=HDE+205>

¹⁸<https://www.taylorfrancis.com/chapters/mono/10.1201/9781315182780-11/clustered-longitudinal-data-annette-dobson-adrian-barnett?context=ubx&refId=95f6c50e-093a-4488-a042-92a9f151a4b5>

- Vittinghoff et al. (2012) Chapter 7¹⁹
- Gelman and Hill (2007)
- Jiang and Nguyen (2021)
 - * by UC Davis Statistics Professor and GGE faculty member Jiming Jiang²⁰
- Faraway (2016)
- McCulloch, Searle, and Neuhaus (2008)
- Hedeker and Gibbons (2006)
- Wakefield (2013)
- Zuur (2009)
- Diggle et al. (2013)
- Fitzmaurice, Laird, and Ware (2012)
- Fitzmaurice et al. (2009)
- Gałecki and Burzykowski (2013)
- Congdon (2020)
- Molenberghs and Verbeke (2005)
- Verbeke and Molenberghs (2000)
- Jewell and Hubbard (2016)
 - * by UC Berkeley professors

- Congdon, Peter D. 2020. *Bayesian Hierarchical Models: With Applications Using R, Second Edition*. 2nd edition. Milton: CRC Press.
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- Fitzmaurice, Garrett M, Marie Davidian, Geert Verbeke, and Geert Molenberghs. 2009. *Longitudinal Data Analysis*. Chapman & Hall/CRC Handbooks of Modern Statistical Methods. Boca Raton: CRC Press. <https://doi.org/10.1201/9781420011579>.
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- McCulloch, Charles E, Searle Shayle R, and John M Neuhaus. 2008. *Generalized, Linear, and Mixed Models*. 2nd ed. Vol. 651. John Wiley & Sons.
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¹⁹https://link.springer.com/chapter/10.1007/978-1-4614-1353-0_7

²⁰<https://www.stat.ucdavis.edu/~jiang/>

- <https://doi.org/10.1007/978-1-4419-0300-6>.
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