

**THE UNIVERSITY OF TEXAS
STEVE HICKS SCHOOL OF SOCIAL WORK**

Course Number:	SW 388R 12	Instructor:	Jaime Fuentes-Balderrama, PhD
Unique Number:	61205	Email:	j.fuentes@austin.utexas.edu
Semester:	Spring 2025	Office:	WWH 420.1
Meeting Time/Place:	Tuesdays 8:30am – 11:30am	Office Hours:	Tuesdays and Thursdays, 12:00pm – 1:00pm
	WWH 418		In person or Zoom

Hierarchical Linear Modeling

STANDARDIZED COURSE DESCRIPTION

This applied course introduces hierarchical linear models (HLM) by building on concepts from multiple regression and multivariate analysis. The course will cover applications of these techniques in various contexts enabling students to do a more thorough job of data analysis. This course covers a wide range of applications in social sciences research, including dependency of observations, data nestedness, neighborhood and school effects research, growth curve modeling for repeated measures, models for dichotomous outcomes and an introduction to Bayesian estimation in HLM.

STANDARDIZED COURSE OBJECTIVES

At the end of this course, students should be able to:

1. Specify a social science research question requiring hierarchical linear modeling
2. Understand when and why hierarchical linear models should be used
3. Apply hierarchical linear models to nested data
4. Correctly interpret analysis results from hierarchical linear models
5. Effectively communicate analysis results in writing

TEACHING METHODS

The course will use lectures, readings, classroom discussions and exercises, sample syntax files and homework assignments based on the topics reviewed each class. Students are expected to read before the lecture, follow in-class exercises, be actively involved and, if needed, seek help from the instructor and TA during office hours. Students will be assigned weekly homework assignments along with pertinent datasets and instructions.

REQUIRED TEXT AND MATERIALS

Textbook:

Finch, W.H., & Bolin, J.E. (2024). *Multilevel Modeling Using R* (3rd ed.). Chapman and Hall/CRC. <https://doi-org.ezproxy.lib.utexas.edu/10.1201/b23166>

Although highly encouraged, as it exemplifies data wrangling, package syntax, interpretation and analysis using R, this is not a mandatory textbook.

Software:
RStudio.

COURSE REQUIREMENTS

Course requirements will consist of weekly homework assignments, three exams, as well as a final project consisting of a small manuscript presenting an HLM analysis (3,500 words at most, without tables and references). Students will use at least five peer-reviewed sources to frame the need for the project and present at least one hypothesis to test using HLM. Students will then write the methodology and a detailed analysis plan, conduct the analysis, present the results using APA7 format, interpret and provide the R script used. Finally, the student will write a brief discussion. Requirements will be weighted as follows:

Requirement	Weight	Date
Homework	56%	Weekly
Exams	30%	2/11, 3/11, 4/22
Final project	14%	4/15

Regular attendance is highly encouraged as an active involvement in class discussions about assigned readings will be considered towards final grades. The best 7 out of 9 total homeworks will be considered towards the final grade.

GRADES

[No A+]		87.0 to 89.999	B+	77.0 to 79.999	C+	67.0 to 69.999	D+
94.0 and Above	A	84.0 to 86.999	B	74.0 to 76.999	C*	64.0 to 66.999	D
90.0 to 93.999	A-	80.0 to 83.999	B-	70.0 to 73.999	C-	60.0 to 63.999	D-
				<i>*minimum to pass course</i>		Below 60.0	F

CLASS POLICIES

Most classes will begin with an overview of the homework that was handed in before the lecture. The next step will introduce students to the topic of the week which will be applied using an example which will be guided by the instructor and discussed by the class, then a second example will be presented and solved individually in the classroom.

A collaborative approach between students is encouraged, yet all homework assignments and exams are to be completed individually and submitted the night before the next lecture. Submissions received after 11:59 PM central the day before the lecture, will be considered late and will be evaluated using penalties of 5% for each day they are late.

If students cannot attend a lecture or find themselves in need of asking for deadline accommodations, they should contact the instructor at their earliest convenience. It would be the student's responsibility to catch up with class materials and homework. Students are

expected to inform the instructor if they intend to attend office hours in-person or if Zoom would be best. Final grades assigned in the course are not negotiable.

UNIVERSITY POLICIES

Attendance and Academic Behavior. At the University of Texas at Austin, regular attendance at all class meetings is expected. Instructors are responsible for implementing an attendance policy and must notify students of any special attendance requirements. See more information at <https://catalog.utexas.edu/general-information/academic-policies-and-procedures/attendance/>. Furthermore, students are expected to abide by the Standards for Social Work Education (available at <https://socialwork.utexas.edu/student-resources/bsw/policies-and-procedures/>). The student shows potential for responsible and accountable behavior by being punctual and dependable, prioritizing responsibilities, attending class regularly, observing deadlines, completing assignments on time, and keeping appointments or making appropriate arrangements.

Religious Holy Days. A student who misses classes or other required activities, including examinations, for the observance of a religious holy day should inform the instructor as far in advance of the absence as possible so that arrangements can be made to complete an assignment within a reasonable period after the absence. A reasonable accommodation does not include substantial modification to academic standards, or adjustments of requirements essential to any program of instruction. Students and instructors who have questions or concerns about academic accommodations for religious observance or religious beliefs may contact the Center for Access and Restorative Engagement at <https://community.utexas.edu/care/>. The University does not maintain a list of religious holy days.

The University of Texas Honor Code. The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

Policy on Academic Integrity. Students who violate University rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and / or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on academic dishonesty will be strictly enforced. For further information, please visit the Student Conduct and Academic Integrity website at: <http://deanofstudents.utexas.edu/conduct>.

Use of Course Materials. The materials used in this course, including, but not limited to exams, quizzes, and homework assignments, are copyright protected works. Any unauthorized duplication of the course materials is a violation of federal law and may result in disciplinary action being taken against the student. Additionally, the sharing of course materials without the specific, express approval of the professor may be a violation of the University's Student Honor Code and an act of academic dishonesty, which could result in further disciplinary action. This sharing includes, among other things, uploading class

materials to websites for the purpose of distributing those materials to other current or future students.

University Electronic Mail Student Notification. Electronic mail (email), like postal mail, is a mechanism for official University communication to students. The University will exercise the right to send email communications to all students, and the University will expect that email communications will be received and read in a timely manner. Students can find UT Austin's policies and instructions for updating their e-mail address at <https://it.utexas.edu/policies/university-electronic-mail-student-notification-policy>.

Steve Hicks School of Social Work Policies

Professional Conduct and Civility in the Classroom. The professor expects students to act as professionals in class. This means students should arrive on time for class, be prepared to participate in the class discussion, and show respect for one another's opinions. A course brings together a group of diverse individuals with various backgrounds. Students are influenced and shaped by such factors as race, ethnicity, gender, sex, physical abilities, religious and political beliefs, national origins, and sexual orientations, among others. We expect to learn from each other in an atmosphere of positive engagement and mutual respect. This atmosphere includes working intentionally to recognize and dismantle racism, sexism, heterosexism, and ableism in the classroom. Social Work also deals with complex and controversial issues. These issues may be challenging and uncomfortable, and it would be impossible to offer a substantive classroom experience that did not include potentially difficult conversations relating to challenging issues. In this environment, we will be exposed to diverse ideas and opinions, and sometimes we will not agree with the ideas expressed by others. Nevertheless, the professor requires that students engage one another with civility, respect, and professionalism.

Classroom Confidentiality. Information shared in class about agencies, clients, and personal matters is considered confidential per the NASW Code of Ethics on educational supervision and is protected by regulations of the Family Educational Rights and Privacy Act (FERPA) as well. As such, sharing this information with individuals outside of the educational context is not permitted. Violations of confidentiality could result in actions taken according to the policies and procedure for review of academic performance located in sections 3.0, 3.1, and 3.2 of the Standards for Social Work Education.

Unanticipated Distress. Students may experience unexpected and/or distressing reactions to course readings, videos, conversations, and assignments. If so, students are encouraged to inform the professor. The professor can be responsive and supportive regarding students' participation in course assignments and activities, but students are responsible for communicating clearly what kind of support is desired. If counseling is needed, students may contact a service provider of their choosing, including the UT Counseling and Mental Health Center at 512-471-3515 or online at <https://cmhc.utexas.edu/>.

Policy on Social Media and Professional Communication. Public social networks are not private. Even when open only to approved or invited members, users cannot be certain that

privacy will exist among the general membership of sites. If social work students choose to participate in such forums, please assume that anything posted can be seen, read, and critiqued. What is said, posted, linked to, commented on, uploaded, subscribed to, etc., can be accessed and archived, posing potential harm to professional reputations and prospective careers.

Social work students who use social media (e.g. Facebook, Twitter, Instagram) and other forms of electronic communication (e.g. blogs) must be mindful of how their communication may be perceived by clients, colleagues, faculty, and others. Social work students are expected to make every effort to minimize material which could be considered inappropriate for a professional social worker in training. Because of this, social work students are advised to manage security settings at their most private levels and avoid posting information/photos or using any language that could jeopardize their professional image.

Students are asked to consider the amount of personal information posted on these sites and are obliged to block any client access to involvement in the students' social networks. Client material should not be referred to in any form of electronic media, including *any* information that might lead to the identification of a client or compromise client confidentiality in *any* way. Additionally, students must critically evaluate any material that is posted regarding community agencies and professional relationships, as certain material could violate the standards set by the School of Social Work, the Texas Code of Conduct for Social Workers, and/or the NASW Code of Ethics.

Social work students should consider that they will be representing professional social work practice as well as The University of Texas at Austin School of Social Work program while in the classroom, the university community, and the broader area communities.

Resources, Prevention of Discrimination, and Safety

Disability Accommodation Statement. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Disability and Access (D&A). You may refer to D&A's website for contact and more information: <https://disability.utexas.edu/>. If you are already registered with D&A, please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and how they apply in my class.

Behavior Concerns Advice Line (BCAL). If students have concerns about their behavioral health, or if they are concerned about the behavioral health of someone else, students may use the Behavior Concerns Advice Line to discuss by phone their concerns. This service is provided through a partnership between the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit <https://safety.utexas.edu/behavior-concerns-advice-line>.

Covid-19 Related Information. The University's policies and practices related to the pandemic may be accessed at: <https://protect.utexas.edu/>

Title IX Reporting. In accordance with Title IX of the Education Amendments of 1972, the University of Texas at Austin is committed to maintaining a learning environment that is free from discriminatory conduct on the basis of sex <https://titleix.utexas.edu/>. Faculty, field instructors, staff, and/or teaching assistants in their supervisory roles are mandated reporters of incidents of sex discrimination, sexual harassment, sexual violence, stalking, dating violence, or any other forms of sexual misconduct. Students who report such incidents will be informed of University resources. Incidents will be reported to the University's Title IX Coordinator. Further information, including student resources related to Title IX, may also be found at <https://titleix.utexas.edu/>.

Title IX Accommodations for Those Pregnant, Nursing and Parenting. Pregnant, nursing and parenting students, faculty, and staff are eligible for accommodations through the Title IX Office that support equal access to education and work and prevent discrimination. Students may reach out to the Title IX Office for help with accommodations to make up missed classes, complete missed coursework, keep them safe in the classroom, apply for leaves of absence, receive priority registration and other related support. Faculty and staff, including undergraduate students who work on campus and graduate student employees, may reach out for assistance with job or schedule restructuring and obtaining modified or additional work equipment. Visit the [Title IX pregnancy and parenting resource page](#) for more information or contact the [Title IX Support and Resources team](#) connect with a Case Manager.

Campus Carry Policy. The University's policy on campus carry may be found here: <https://campuscarry.utexas.edu>.

Safety. As part of professional social work education, students may have assignments that involve working in agency settings and/or the community. As such, these assignments may present some risks. Sound choices and caution may lower risks inherent to the profession. It is the student's responsibility to be aware of and adhere to policies and practices related to agency and/or community safety. Students should notify the professor regarding any safety concerns.

Emergency Evacuation Policy. Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation:

- Familiarize yourself with all exit doors in the classroom and the building. Remember that the nearest exit door may not be the one you used when entering the building.
- If you require assistance to evacuate, inform the professor in writing during the first week of class.
- In the event of an evacuation, follow the professor's instructions.
- Do not re-enter a building unless you are given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office

COURSE SCHEDULE

Date	Topic	Reading	Assignment Due	Homework
Jan 14	Course overview, regression, HLM and R	<i>pp. 1 -21</i>		Regression and R
Jan 21	Regression, dependency of observations, ICC	<i>pp. 22-40</i>	Regression and R	ICC
Jan 28	Fixed and random effects, model building	<i>pp. 41- 64</i>	ICC	Fixed and Random
Feb 4	Centering, interactions, model fit, interpretation	UT Tutorial Woltman, H., Feldstain, A., MacKay, J. C., & Rocchi, M. (2012). An introduction to hierarchical linear modeling. <i>Tutorials in quantitative methods for psychology</i> , 8(1), 52-69.	Fixed and Random	
Feb 11	Exam 1			
Feb 18	Long-wide data wrangling, growth curve models	Chapter 8: RM – ANOVA Speekenbrink, M. (2023). <i>An R companion to Statistics: Data analysis modelling</i> .		
Feb 25	Polynomial Growth curve models continued	<i>pp. 79 - 88</i>		Growth curves
Mar 4	Covariance structures	<i>Appendix E</i> Vinyard, B. Linear Mixed Models using SAS v9.2	Growth curves	Time and covariance structures
Mar 11	Exam 2		Time and covariance structures	
Mar 18	Spring break			
Mar 25	Cross-classified	Beretvas, S. N. (2011). Cross-classified and multiple-membership models.		Cross-classified

		In <i>Handbook of advanced multilevel analysis</i> (pp. 313-334). Routledge.		
Apr 1	Cross-sectional models for binary outcomes	pp. 138 - 166	Cross-classified	Binary outcomes
Apr 8	Longitudinal models for binary outcomes	Sommet, N., & Morselli, D. (2017). Keep calm and learn multilevel logistic modeling: A simplified three-step procedure using Stata, R, Mplus, and SPSS. <i>International Review of Social Psychology</i> , 30, 203-218.	Binary outcomes	Longitudinal binary
Apr 15	Bayesian	pp. 167 - 198	Longitudinal Binary AND Final project	Bayesian
Apr 23	Exam 3		Bayesian	

BIBLIOGRAPHY

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- Garson, G. D. (2019). *Multilevel Modeling: Applications in STATA®, IBM® SPSS®, SAS®, R, & HLMTM*. Sage Publications.
- Heck, R., & Thomas, S. L. (2020). *An introduction to multilevel modeling techniques: MLM and SEM approaches*. Routledge.
- Huang, F. L. (2022). *Practical multilevel modeling using R*. Sage Publications.
- Hox, J., Moerbeek, M., & Van de Schoot, R. (2017). *Multilevel analysis: Techniques and applications*. Routledge.
- Raudenbush, S. W. (2002). Hierarchical linear models: Applications and data analysis methods. *Advanced Quantitative Techniques in the Social Sciences Series/SAGE*.
- Van de Vijver, F. J., Van Hemert, D. A., & Poortinga, Y. H. (2015). *Multilevel analysis of individuals and cultures*. Psychology Press.