SYLLABUS

Course
CLRE 263 – Longitudinal Data Analysis

Course Instructor
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Semester and Class Time
Spring 2020; Tuesdays from 4:00 to 6:00 PM, from March 31st to June 9th

Class Format
Online via Zoom: [https://uchealth.zoom.us/j/938635304](https://uchealth.zoom.us/j/938635304). See Announcements section on Canvas for full details. Zoom sessions will be recorded and made available on Canvas.

Course Purpose
The objective of this course is to introduce the students to statistical methods for analyzing longitudinal, clustered, and repeated measures data; to build proficiency using SPSS for such analyses; and to equip the students with knowledge, experience, and resources to do these types of analyses in their own research.

Reading Materials
Lecture notes are posted on Canvas. Useful texts, not required for this course, include


Statistical Software
IBM SPSS version 25 (free): UCSD has a university-wide SPSS license. Download from course’s page on Canvas (see Announcements).

Course Materials
Course materials will be posted on its Home web page on [https://canvas.ucsd.edu](https://canvas.ucsd.edu). Materials are grouped by weeks. For example, Lecture 1 and Homework 1 can be found in Week 1 module. Alternatively, homework can be found in Assignments and quizzes in Quizzes. SPSS data files are stored in Data Files and Data Files Homework. Final project materials will be posted in the Final Project module.

In-class Quiz
At the end of each lecture a mini quiz will be posted on Canvas to be completed at that time. The quiz will consist of 1 to 2 questions for a total of 4 points.
**Homework Assignments**
Weekly homework assignments will be posted on Canvas and will be due at the beginning of the class period on each due date. To receive full credit, students must answer all questions and show all relevant work (hand calculations or software output). Completed assignments must be submitted through Canvas in Word or PDF format. *Late homework will not be accepted.*

**Final Project**

1. The final project will involve an analysis of a study with clustered, longitudinal, or repeated measures data, preferably from the students’ own research.

2. The final product will be in the form of a paper and a 5-10 minute presentation, to take place on the last day of class, and additional analysis materials.

3. The level of the presentation will be similar to that of a scientific meeting, with a larger emphasis on the statistical analysis.

4. The paper will have a similar structure to a scientific publication (introduction, methods, statistical analysis, results, discussion, references, tables and figures).

5. Every student has to be present for the entirety of the final session or risk a grade penalty.

6. Timeline: see schedule.

7. For assignment details, see Final Project document in the Final Project module on Canvas.

**Groups**
The students may work in groups of 2 or 3 (at most) for homework and the final project, and can submit one assignment per group with the names of all group’s members listed on the submitted document. All groups must be formed by homework 3, no changes will be allowed afterward. Working in groups is encouraged but not required.

**Class schedule (subject to change)**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Assignments due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Mar 31</td>
<td>L1: Regression data analysis overview</td>
<td>Read syllabus and install SPSS</td>
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<tr>
<td>Week 2</td>
<td>Apr 7</td>
<td>L2: Introduction to repeated measures analysis</td>
<td>Hmk 1 due</td>
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<tr>
<td>Week 3</td>
<td>Apr 14</td>
<td>L3: Repeated measures ANOVA</td>
<td>Hmk 2 due</td>
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<tr>
<td>Week 4</td>
<td>Apr 21</td>
<td>L4: Linear mixed effects model Part 1</td>
<td>Hmk 3 - Project proposal due</td>
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<tr>
<td>Week 5</td>
<td>Apr 28</td>
<td>L5: Linear mixed effects model Part 2</td>
<td>Hmk 4 due</td>
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<tr>
<td>Week 6</td>
<td>May 5</td>
<td>L6: Generalized estimating equations (GEE)</td>
<td>Hmk 5 due</td>
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<tr>
<td>Week 7</td>
<td>May 12</td>
<td>L7: Mixed effects logistic regression</td>
<td>Hmk 6 due</td>
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<tr>
<td>Week 8</td>
<td>May 19</td>
<td>L8: GEE logistic regression</td>
<td>Hmk 7 - Preliminary analysis due</td>
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<td>Week 9</td>
<td>May 26</td>
<td>L9: Missing data in longitudinal studies</td>
<td>Hmk 8 due</td>
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<tr>
<td>Week 10</td>
<td>Jun 2</td>
<td>L10: Additional topics</td>
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<tr>
<td>Week 11</td>
<td>Jun 9</td>
<td>Final project presentations</td>
<td>Final Project Draft due</td>
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Grading
The course grade will be based on the homework assignments (including final project updates; 40%), in-class quizzes (10%), and the final project (20% in-class presentation + 30% final manuscript).

Attendance
Per general CREST attendance policy, no more than 3 missed sessions are allowed. You have to be present in both halves of the class.

Time Considerations
Students should expect to spend 1–4 hours a week outside of class on studying (including time spent on homework). Individual times may vary.

Academic Integrity
Cheating, plagiarism, and academic dishonesty will be taken seriously and reported to the CREST/MAS program administrators. Passing someone else’s work as one’s own, including printouts from a software and answers to assignment questions, is considered cheating. Sanctions may range from a reduced grade (including 0%) to the failure of the course. Starting in 2017, all students must complete a tutorial on academic integrity (here: https://moodle.ucsd.edu/course/view.php?id=16).

Students with Disabilities
The instructor, in conjunction with the University of California, San Diego, is committed to upholding and maintaining all aspects of the Federal Americans with Disabilities Act of 1990 (AD) and Section 504 of the Rehabilitation Act of 1973. If you are a student with a disability and wish to request accommodations, please contact the Extension office and they will provide you with information and/or a referral to Student Disability Services. Any information regarding your disability will remain confidential. Because many accommodations require early planning, requests for accommodations should be made as early as possible. Any requests for accommodations will be reviewed in a timely manner to determine their appropriateness to this setting.

Useful Online Resources
UCSD has a university-wide SPSS license. Register and obtain further information at http://acms.ucsd.edu/services/software/available-software/SPSS.html#SPSS

IBM provides online support to student users of SPSS here: http://www-01.ibm.com/support/docview.wss?uid=swg21592093.

UCLA provides useful information on many statistical methods for multiple software, including SPSS: https://stats.idre.ucla.edu/spss/.

A collection of links to useful sites, such as on-line statistical calculators and tools, can be found here: http://statpages.org.

Acknowledgments
This course was originally designed and taught by Professor Florin Vaida. Lecture and course contents were developed from his original materials.