# Syllabus

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<th>Feature</th>
<th>Considerations</th>
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| Instructor & TA Information (for each Faculty and TA) | • Dr. Chin-Hsing (Vincent) Chen  
• chin-hsing.chen@uth.tmc.edu  
• Telephone 713-500-9766  
• University Center Tower (UCT), Room 2514  
• Instructor: By appointment  
• TA will set office hours after discussing with students |
| Course Description                                    | • PH 1426: Applied Longitudinal Analysis  
• Spring Semester  
• 3 credit hours  
• Format: Face to Face  
• This course is designed for applied researchers who will use longitudinal methods to address research questions. Topics will include multilevel model for change, flexible treatment of time effects, discontinuous and nonlinear change, modeling options for covariance structure, generalized linear models, generalized estimating equations, generalized linear mixed model, growth curve model, growth mixture model, latent transition model, survival analysis and other relevant longitudinal methods. The emphasis will be on a conceptual understanding of these methodologies and their assumptions, implementation using standard statistical packages, and interpretation of output. Students should be familiar with the elements of research design and have completed a basic statistical sequence that covered univariate methods and hypothesis testing. |
• Additional Assigned Readings (distributed as handouts on Blackboard)  
• The textbook has been placed on reserve in the UT SPH Library (Circulation: 713-500-9121). Copies are available for purchase from the Bookstore in Nursing School or from online sources.  
• Assignments and lecture slides will be posted in PDF format in Blackboard. |
| **Course Learning Objectives** | • Understand statistical procedures and programs for longitudinal data analysis  
• Prepare data to the degree suitable for analysis purpose  
• Recognize and describe assumptions made in each longitudinal statistical model and their limitations  
• Apply data transformation techniques to satisfy model assumptions  
• Differentiate among various statistical methods to every subtle difference  
• Appraise competing models in longitudinal methods for given research questions and data sets using model fit statistics  
• Synthesize appropriate analysis plans and practice menu-driven and syntax programming  
• Describe and interpret analysis output and results  
• Present results in a fashion suitable for academic publication  
• Complete a final project as a publishable manuscript |
| **Learning Activities** | • Homework assignments on the following topics:  
  1. Fitting longitudinal curves using nonparametric methods;  
  2. Modeling for longitudinal data with time-varying predictors;  
  3. Analysis of time-invariant variables in a multilevel setting;  
  4. Estimating random-intercepts models with multiple regressors;  
  5. Estimating individual variation in growth curve models;  
  6. Fitting categorical outcomes in latent transition models;  
  7. Estimating hazard probability and effects of time varying predictors in survival analysis  
• In-class and computer lab exercises  
• Mid-term exam and final project |
| **Student Assessment And Grading Criteria** | • Evaluation will be determined by assignments (55%), a midterm exam (15%) and a final project (30%)  
• Mid-term exam on multilevel model for change techniques discussed in the first half of the semester  
• Final project will use longitudinal methods to answer research questions of longitudinal nature, analyze own data (or provided by instructor), and write up a 10-page manuscript, including all sections in a typical manuscript  
• Final grades will be based on the sum of all points accrued and adhere to the following scale: (pass: A or B, fail: C or D); 90-100=A; 76-89=B; 60-75=C; Below 60=D.  
• **Missed or late homework**  
  Full points can only be earned for homework assignments and exams RETURNED ON TIME. For each day the assignment is |
returned late, 20% of the points will be discounted. Assignments will NOT be accepted once feedback is given and problems were discussed in class. In order to fully update your points on exams, you need to meet the deadlines set for the corrections of your work. **Typically, you have 1 week for corrections after an exam has been returned to you,** unless announced otherwise in class. If you need more time for corrections, please inform the instructor and agree on a new deadline in order to be eligible for point updates.

### Prerequisites and/or Technical Requirements

- **PH 1420 L and 1725 L.** These courses and their prerequisites must be taken prior to this course and cannot be taken concurrently. Students who have not taken PH 1420 L and/or 1725 must demonstrate the specific knowledge necessary for successful participation in the course.

### Blackboard

- **This course will rely on the Blackboard Course Management System, which can be found at [https://bb.uth.tmc.edu/index3.html](https://bb.uth.tmc.edu/index3.html).** Students will see PH 1426 listed on their webpage after enrolled in the class. All course materials including homework assignments and additional reading will be accessible from this course website. Students can also turn in their homework or exam through the website.

### Statistical analysis software

- **SAS will be used for class assignments and is available on computers in the computer Services lab.**
- **The computer lab is located in SPH main building (RAS) E-15.**

### Policies and Procedures

- **Course expectations**

  Statistical concepts and modeling strategies may seem difficult to understand and to master as though they were written in a foreign language. Students will find their learning curve less steep, learning experience more pleasant and their success more assured when they manage to do the following:

  - Keep up with the assigned reading before class
  - Attend every class and take good notes
  - Complete all homework assignments and turn them in on time
  - Ask questions and be encouraged to make mistakes and think outside the box
  - Study in a group
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<th><strong>Changes in course assignments and schedule:</strong></th>
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<td>The instructor may adjust the course readings, assignments, tests, and schedule in order to advance learning and best attain the objectives of the course. Any changes will be announced in class.</td>
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<th><strong>Withdraw information:</strong></th>
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<td>The procedures for withdrawal are established by the UT SPH and require signature of the instructor. Students electing this option should contact the instructor in person or by email to make arrangements for processing the necessary form.</td>
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<th><strong>Incomplete grades:</strong></th>
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<td>Consideration for incomplete grades will be made on a case-by-case basis. Students should contact the instructor directly regarding their request for an incomplete. Incompletes will not be granted because of poor performance.</td>
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• **Academic dishonesty policies:**

Students are encouraged to share ideas and discuss freely any aspect of the course material. However, students are expected to do their own work and adhere to rules of acceptable student conduct. Scholastic dishonesty includes, but is not limited to, falsifying research, cheating on assignments or examinations, or plagiarizing any aspect of work that is submitted as your own. Plagiarism extends beyond copying text verbatim from the writing or works of another individual – note that paraphrased text that is too similar to the original passage, even though it is correctly cited, may be viewed as plagiarized text. Refer to website developed by the University of Texas at Austin for examples of plagiarism: [http://www.utexas.edu/lbj/students/writing/plagiarism.pdf](http://www.utexas.edu/lbj/students/writing/plagiarism.pdf).

Homework assignments will be periodically and randomly checked for plagiarism using SafeAssign software. Cases involving allegation of scholastic dishonesty may be forwarded to Dr. Cynthia Chappell, the Sr. Associate Dean for Academic Affairs of the School of Public Health. Scholastic dishonesty is grounds for awarding a class grade of “F” and suspension of student status for one year or expulsion from the School.

• **ADA accommodations**

If you have a documented disability that will impact your work in this class, please contact Dr. Mary Ann Smith, Associate Dean for Student Affairs and notify your instructors as well.

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<tr>
<th><strong>Course Calendar</strong></th>
<th>• DO NOT SUBMIT COURSE CALENDAR TO STUDENT AFFAIRS.</th>
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<tbody>
<tr>
<td><strong>SEPARATE DOCUMENT</strong></td>
<td>• List class activities and due dates.</td>
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<tr>
<td></td>
<td>• Create a separate document for the course calendar, which will allow students to print it.</td>
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For help with learning objectives, see [http://www.sph.uth.tmc.edu/oid/default.aspx?id=9224](http://www.sph.uth.tmc.edu/oid/default.aspx?id=9224)