Web Page: http://sites.google.com/site/biostat251/

Instructor: Donatello Telesca  
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Meeting Times  
Lecture: MW 10:00A - 11:50A PUB HLT 41-268  
Office Hours: M (1:00P - 2:00P) or by appointment

Reading Material  
(Required) Journal Articles uploaded on the class web-page (Check frequently).  

Approximate Schedule  
Week 1: Multivariate Distributions  
Week 2: Inference for the Multivariate Normal  
Week 3: Multivariate Linear Models  
Week 4: Multivariate Analysis of Variance and Covariance  
Week 5: Graphical Models  
Week 6: Analysis of Longitudinal Data  
Week 7: Principal Components and Factor Analysis  
Week 8: Discriminant Analysis  
Week 9: Cluster Analysis  
Week 10: Introduction to Copulas

Computing.  
The supported software for 251 is the R statistical environment (http://cran.r-project.org/).

Coursework  
The final grade will be determined as follows:
Late policy
Each turned in item receives an initial grade of $x$, then the actual grade is $y = x \exp(-d/10)$, where $d$ is the number of days after the due date I receive the work. Everyone receives one grace day to be applied to one homework for the entire quarter.

Learning Objectives and Competencies

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<tr>
<th>Learning objectives</th>
<th>PhD Competencies</th>
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<tr>
<td>Understand the theoretical foundations of multivariate analysis</td>
<td>A8 Research biostatistical methods and computational resources for collaborative research.</td>
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<td>B1 Develop ability to critically read statistical methodological literature.</td>
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<td>Develop a critical sense of what works and what does not work in applied multivariate problems</td>
<td>A2 Formulate a public health or scientific question in statistical terms.</td>
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<td>A5 Conduct appropriate statistical analyses of study data and interpret the results.</td>
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<td>B2 Develop ability to critically read literature on contemporary public health problems and to identify the salient statistical issues.</td>
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<td>B3 Develop ability to comprehend and be engaged in seminars and presentations on biostatistical research.</td>
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<td>Use statistical packages like R and Bugs to perform advanced calculations and statistical analyses</td>
<td>B5 Develop ability to evaluate and incorporate new and evolving computational and digital technologies into biostatistical work.</td>
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<td>C6 Develop software and digital tools to implement novel biostatistical methodologies.</td>
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<tr>
<td>Identify new statistical methodological problems and sketch the plan for possible new directions in statistical research</td>
<td>C6 Develop software and digital tools to implement novel biostatistical methodologies.</td>
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<td>C7 Organize and present effective seminars on biostatistical research.</td>
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<td>D5 Learn to write and publish biostatistical methodology in biostatistical journal articles and books.</td>
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<td>D6 Learn to write and publish substantive field publications and communicate the statistical portion of the methodology to a substantive field audience.</td>
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