

University of Manitoba  
Department of Statistics

**STAT 7080 A01, CRN 21201**  
**Advanced Statistical Inference**  
**Second Term, 2011 – 2012**

<b>Instructor</b>	Dr. Xikui Wang Office: 321 Machray Hall (Phone: 474 – 6275) E-mail: xikui_wang@umanitoba.ca						
<b>Office Hours</b>	Tuesdays and Wednesdays 10:00 am – 11:30 am, or by appointment						
<b>Course Web</b>	Teaching materials, if any, are posted on the university ANGEL website						
<b>General Description</b>	<p>Selected topics from recent developments in parametric and/or non-parametric statistical inference.</p> <p>Topics are focused on asymptotic methods for both parametric and non-parametric statistical inference and include (but not limited to): modes of stochastic convergence, stochastic <math>o</math> and <math>O</math> notations, Slutsky theorem, Sverdrup theorem, Cramer-Wold device, Delta method, law of large numbers (brief), central limit theorems (brief), law of iterated logarithm (brief), asymptotic distributions of statistics, asymptotic estimation and hypothesis testing, consistency, asymptotic (relative) efficiency, and possibly (depending on availability of time) asymptotic likelihood ratio, asymptotic Bayesian analysis, and more.</p>						
<b>Prerequisites</b>	Consent of instructor						
<b>Recommended References</b> (Some are free from Springer's web)	<ol style="list-style-type: none"><li>1. <i>Probability – a graduate course</i>, by Allan Gut, Springer, 2005</li><li>2. <i>Elements of Large-Sample Theory</i>, by E.L. Lehmann, Springer, 1999</li><li>3. <i>Asymptotic Theory of Statistics and Probability</i>, by A. DasGupta, Springer, 2008</li><li>4. <i>Large Sample Methods in Statistics</i>, by P.K. Sen and J.M. Singer, Chapman and Hall, 1993</li><li>5. <i>Asymptotic Statistics</i>, by A.W. van der Vaart, Cambridge University Press, 1998</li></ol>						
<b>Grading</b>	<table><tr><td>Five Assignments</td><td>25%</td></tr><tr><td>Midterm Test (March 1, 2012; 1:00 pm – 2:30 pm, in class)</td><td>25%</td></tr><tr><td>Final Examination (1 – 4 pm, April 12, 2012, 316 Machray Hall)</td><td>50%</td></tr></table>	Five Assignments	25%	Midterm Test (March 1, 2012; 1:00 pm – 2:30 pm, in class)	25%	Final Examination (1 – 4 pm, April 12, 2012, 316 Machray Hall)	50%
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<b>Remarks</b>	<ol style="list-style-type: none"><li>1. Both the midterm test and the final examination are closed book. No formula sheet will be provided.</li><li>2. You must work independently on your assignments, although you may discuss with your classmates. Copying assignments, plagiarizing from published works or solutions, and cheating in other ways are considered serious violations of academic integrity and are subject to severe penalties. For details, see <a href="http://umanitoba.ca/student/studentdiscipline/index.html">http://umanitoba.ca/student/studentdiscipline/index.html</a></li></ol>						