STAT 360 – Probability and Statistics

T, TH, 13:25-14:40am, Fall 2016
TODD 130

Instructor: Yuan (Yoo-an) Wang
Office: Neill 328
Office Hours: T, TH 14:40-16:30
Email: yuan.wang@wsu.edu
Website: http://www.math.wsu.edu/faculty/ywang

TA: Nicholas Cowan
For homework grading problems, contact TA through nicholas.j.cowan@wsu.edu

Math Learning Center: Successful students make use of available resources, so don't struggle when help is just a few steps away! We want you to succeed, we're here for you, and we have FREE tutoring available in the Math Learning Center (Cleveland 130) and the computing lab, Thompson Hall (Room 1). Our hours this semester will be Sunday 4 - 9 pm, M. - Th. 10 am - 9 pm, Fr. 10 am - 5 pm in Cleveland 130 and Sunday 4 - 9 pm, M. - Th. 5 - 9 pm in Thompson room 1.

Prerequisites: Math 172 or Math 182.


List of topics:

<table>
<thead>
<tr>
<th>Pictorial Data Displays</th>
<th>Descriptive Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random Variable</td>
<td>Confidence Intervals</td>
<td>Simple Hypothesis Tests</td>
</tr>
<tr>
<td>Linear Regression</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Grades:
- Weekly homework: 30%;
- MidExam (Oct. 4th 1:25-2:40pm, TODD130): 30%;
- Final Exam (Dec. 14th 1-3pm, TODD130): 40%;

Bonus Credits:
- Six in class pop quizzes: 3%;
- Course evaluation: 1%;
- Office/Math learning center visit: 1%

The class will be graded on the scale of (no curve)
- 90% = A range (A- = 90%~93%-; A = 93~100%)
- 80% = B range (B- = 80%~83%-; B = 83%~87%-; B+ = 87%~90%-)
- 70% = C range (C- = 70%~73%-; C = 73%~77%-; C+ = 77%~80%-)
- 60% = D range (D = 60%~65%-; D+ = 65%~70%-)
- 60% = F.

Course Outline and Learning Outcomes:

<table>
<thead>
<tr>
<th>week</th>
<th>Topics covered</th>
<th>You should be able to learn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Descriptive statistics</td>
<td>• bar chart, pie chart, histogram and boxplot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• mean, median, variance, and standard deviation</td>
</tr>
<tr>
<td>2-3</td>
<td>Probability</td>
<td>• the concept of probablity, conditional probability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• calculation of probability of a given event</td>
</tr>
<tr>
<td>4</td>
<td>Discrete random variable</td>
<td>• probability mass function</td>
</tr>
<tr>
<td>5</td>
<td>Continouer random variable</td>
<td>• probability densify function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• cumulative distribution function</td>
</tr>
<tr>
<td>6</td>
<td>Sampling distribution</td>
<td>• distribution of sample statistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Central limit theorem</td>
</tr>
<tr>
<td>7-8</td>
<td>Confidence interval</td>
<td>• CI for population proportion and mean</td>
</tr>
<tr>
<td>------</td>
<td>--------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>9-10</td>
<td>Hypothesis test</td>
<td>• Z-test for population proportion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• t-test for population mean</td>
</tr>
<tr>
<td>11</td>
<td>Two-sample Hypothesis test</td>
<td>• Two-sample t-test for the difference of two means</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Z-test for the difference of two proportions</td>
</tr>
<tr>
<td>12-13</td>
<td>Linear regression</td>
<td>• Predictor variable, response variable, correlation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The estimation and interpretation of linear model</td>
</tr>
<tr>
<td>14-15</td>
<td>Nonparametric methods</td>
<td>• Wilcoxon rank sum test</td>
</tr>
</tbody>
</table>

**Academic Integrity:**

Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office of Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions.

**WSU Safety Measures:**

Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.

**Students with Disabilities:**

Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist at Access.Center@wsu.edu or visit the webpage: [http://accesscenter.wsu.edu](http://accesscenter.wsu.edu)