INSTRUCTOR: Dr. Katherine Hamilton, Ph.D.  
OFFICE: 101H IST Building  
OFFICE HOURS: Mon & Wed 1:30-2:30PM (or by appointment)  
OFFICE NUMBER: 814-867-4866  
MAILBOX: 102B IST Building  
E-MAIL: khamilton@ist.psu.edu

TA: Mira Shah  
OFFICE: 325D IST Building  
OFFICE HOURS: Tues 6:00-7:00PM (or by appointment)  
E-MAIL: mbs5268@psu.edu

MAILBOX: 102B IST Building  
E-MAIL: khamilton@ist.psu.edu

Course Description
Your student handbook describes this course as:

"An “Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing and analysis; specifically applied to information sciences and technology applications.”

In reality this course is a hybrid between traditional statistical theories and understanding data manipulation techniques. SRA is a diverse major. Many of our graduates have reported working with statistics in varying degrees. Some alumni have been directly responsible for analyzing and making sense of large volumes of data through running various statistical analyses, whereas others have mainly needed to be effective consumers of statistical information.

Course Objectives
Based on the differences in job roles of our graduates, the objectives of this course are to focus on:

1) Theory:
   • To educate you on the theoretical underpinnings of multiple statistical techniques

2) Application in SPSS:
   • To facilitate running analyses using a statistical tool

3) Critical Thinking:
   • To develop problem solving skills in determining what may be wrong with data

This course is comprised of a mix of both lecture and laboratory components. The basic knowledge and theoretical background of statistics will be presented in lecture. You will have the opportunity for more “hands-on” experiences in the labs, where you will be able to apply these ideas to the evaluation of real-world cases.

Course Resources
Required Texts:

Grading

Final grades are based on a tally of the following assignments:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>60 points</td>
<td>20% 93-100</td>
<td>279-300</td>
</tr>
<tr>
<td>Exam 2</td>
<td>60 points</td>
<td>20% 90-92.9</td>
<td>270-278</td>
</tr>
<tr>
<td>Exam 3</td>
<td>60 points</td>
<td>20% 87-89.9</td>
<td>261-269</td>
</tr>
<tr>
<td>Homework</td>
<td>30 points</td>
<td>10% 83-86.9</td>
<td>249-260</td>
</tr>
<tr>
<td>Assignments (6)</td>
<td>30 points</td>
<td>10% 80-82.9</td>
<td>240-248</td>
</tr>
<tr>
<td>Labs (3)</td>
<td>30 points</td>
<td>10% 75-79.9</td>
<td>225-239</td>
</tr>
<tr>
<td>Class Participation</td>
<td>30 points</td>
<td>10% 70-74.9</td>
<td>210-224</td>
</tr>
<tr>
<td>Team Presentations</td>
<td>30 points</td>
<td>10% 60-69.9</td>
<td>180-209</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0-59.9</td>
<td>0-179</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>300 points</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** You can calculate your grade at any time by dividing your current number of points by the number of points evaluated and multiplying it by 100. The result can then be compared to the grading scheme to determine your current grade.**

**Exams:** All exams are closed-book and evaluate your knowledge of both the lecture material and any assigned readings. They will consist of multiple choice, essay, and/or computation questions. Each exam will be worth 60 points. You must take all 3 exams.

**Make-Up Policy:** Make-up exams will only be given for religious observances, scheduled University activities, or extreme medical or family emergencies. Make-up exams will not be given unless approved by the instructor prior to the exam, preferably one week prior to the date of the exam.

You are encouraged to ask the instructor or teaching assistant questions DURING the exam if you are unsure about the wording of a question. Any such concerns raised after the submission and grading of an exam are unlikely to be honored.

The instructor reserves the right to offer retakes for entire exams or portions of an exam at her discretion. If a retake is warranted due to a low overall class average, the policy is to offer EVERYONE the opportunity to complete the retake. Students who elect to complete the retake can receive no more than a B on the assignment.

**Homework Assignments:** You will receive a total of 8 homework assignments throughout the semester. Homework assignments are due by 4:00PM on the dates indicated on the course schedule (see page 7). Each assignment is worth 5 points. Only the top 6 homework assignment grades are used in calculating your final grade. However, if you complete all 8 homework assignments with satisfactory scores, you will have the ability to earn an extra 10 points of extra credit. These points contribute to the 20 point max of extra credit allowed for the course.

You are encouraged to ask the instructor or course assistants questions BEFORE submitting a homework assignment if you are unsure about a concept or the wording of a question. Any such concerns raised after the submission of a homework submission are unlikely to be honored.

**Labs:** There will be a total of 3 labs throughout the semester, each worth 10 points. All 3 labs are used in calculating your final grade. Labs are INDIVIDUAL ASSIGNMENTS. Submissions with highly similar answers will automatically receive an F for the assignment.
You are encouraged to ask the instructor or teaching assistant questions DURING the lab sessions if you are unsure about a concept or the wording of a question. Any such concerns raised after the submission of a lab are unlikely to be honored.

**Class Participation:** Your class participation grade will be based on in-class activities distributed during the course of the semester. These make up 10 percent of your class grade (i.e., a full letter grade). They are therefore very important in determining your standing in the class. These activities will be graded on their accuracy and the thoughtfulness of your responses.

A key purpose of in-class activities is to increase class participation and attendance therefore any missed activities cannot be made-up. Students that miss these opportunities should take advantage of extra-credit opportunities to substitute their missing grade.

**Team Presentations:** Your team project for this class will involve working in a team of 4-5 students. You will need to retrieve at least one empirical research article on a topic of your choosing and critically evaluate the statistical results based on the data manipulation techniques discussed in the course. You will deliver your arguments in a 5-minute team presentation during the last week of the semester. This assignment will discussed in class and posted on ANGEL as we progress through the course.

Be sure to note that your team grade will be adjusted based on your team members’ ratings of your contribution to the group. You are therefore responsible for ensuring that you meet with your team and engage in completing the task together. Any concerns about your team members should be brought to the attention of the instructor in writing as soon as possible.

**Attendance:** To your base grade, the instructor will add an attendance factor:

1. One unexcused absence is allowed per unit. Units are broken down as the following:
   - Unit 1: Exam 1 Material – Monday, August 26th to Wednesday, September 18th
   - Unit 2: Exam 2 Material – Monday, September 23rd to Wednesday, October 16th
   - Unit 3: Exam 3 Material – Monday, October 21st to Wednesday, November 20th
2. Excused absences will not count against your grade if approved by the professor as valid.
3. For every unexcused absence after the maximum allowed, your grade in the course will automatically drop by one +/- grade.

For example, if you earn an A for your base grade, the following would apply for your adjusted grade:

<table>
<thead>
<tr>
<th>Absences</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A-</td>
</tr>
<tr>
<td>3</td>
<td>B+</td>
</tr>
<tr>
<td>4</td>
<td>B</td>
</tr>
<tr>
<td>5</td>
<td>B-</td>
</tr>
<tr>
<td>etc.</td>
<td></td>
</tr>
</tbody>
</table>

Attendance will be evaluated through the use of an attendance pin that you will be responsible for entering into Angel. Forgetting to enter the attendance pin in class will be recorded as an absence from class.

**NOTE:** The instructor reserves the right to mark a student as absent if he/she enters or leaves class at times that are disruptive to lecture, are engaged in non-class activities during the class period (e.g., checking Facebook, playing online games, completing homework for another class), or act in other ways that are disruptive to the learning of other students in the classroom.

**Extra Credit:** You will have the potential to earn a max of 20 extra credit points in this class. These assignments will be discussed in class and posted on ANGEL as we progress through the course.
Your Responsibilities for this Course

1. To Be Courteous
   - Courtesy – noun
     - excellence of manners or social conduct; polite behavior
     - a courteous, respectful, or considerate act or expression
     - don’t be a jerk

2. To Ask Questions
   - Many areas within the field of SRA require you to truly understand what a statistic means without simply taking it at face value. You therefore need to have a basic understanding of this material.
   - Don’t panic if you don’t get it at first. You will have a lot of opportunities to get help if you need it, and please don’t be shy about asking for help. You will find that in many cases the question you have is the same question that the rest of the class has.

3. To Check Angel
   - Some material for this course is presented on the ANGEL account. I will post notes for the lectures before class meets. It is your responsibility to check the ANGEL account regularly.

4. To Attend Class
   - Class attendance is positively correlated with class grades. Missing class means missing important discussions about class assignments and papers, and may result in your missing various announcements about changes related to the syllabus.
   - You are responsible for all announcements made in class whether you attend or not.
Penn State Policies

Academic Integrity

According to the Penn State Principles and University Code of Conduct: Academic integrity is a basic guiding principle for all academic activity at Penn State University, allowing the pursuit of scholarly activity in an open, honest, and responsible manner. In accordance with the University’s Code of Conduct, you must not engage in or tolerate academic dishonesty. This includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person, or work previously used without informing the instructor, or tampering with the academic work of other students. Any violation of academic integrity will be investigated, and where warranted, punitive action will be taken. For every incident when a penalty of any kind is assessed, a report must be filed.

Plagiarism (Cheating): Talking over your ideas and getting comments on your writing from friends are NOT examples of plagiarism. Taking someone else's words (published or not) and calling them your own IS plagiarism. Plagiarism has dire consequences, including flunking the paper in question, flunking the course, and university disciplinary action, depending on the circumstances of the offense. The simplest way to avoid plagiarism is to document the sources of your information carefully.

Disability Access Statement

Americans with Disabilities Act: The School of Information Sciences and Technology welcomes persons with disabilities to all of its classes, programs, and events. If you need accommodations, or have questions about access to buildings where IST activities are held, please contact us in advance of your participation or visit. If you need assistance during a class, program, or event, please contact the member of our staff or faculty in charge.

Access to IST courses should be arranged by contacting:
Office of Human Resources,
332 IST Building
Tel (814) 865-8949

Students with Disabilities: It is Penn State’s policy to not discriminate against qualified students with documented disabilities in its educational programs. (You may refer to the Nondiscrimination Policy in the Student Guide to University Policies and Rules.) If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at http://equity.psu.edu/ods/.

In order to receive consideration for course accommodations, you must contact ODS and provide documentation (see documentation guidelines at http://equity.psu.edu/ods/guidelines/documentation-guidelines). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester.

Statement on Nondiscrimination & Harassment (Policy AD42)

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission and employment without regard to personal characteristics not related to ability,
performance, or qualifications as determined by University policy or by state or federal authorities. It is the
policy of the University to maintain an academic and work environment free of discrimination, including
harassment. The Pennsylvania State University prohibits discrimination and harassment against any person
because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual
orientation, gender identity or veteran status. Discrimination or harassment against faculty, staff or students will
not be tolerated at The Pennsylvania State University.

You may direct inquiries to:

Office of Multicultural Affairs,
332 Information Sciences and Technology Building,
University Park, PA 16802
Tel 814-865-0077

Office of Affirmative Action,
328 Boucke Building,
University Park, PA 16802-5901
Tel 814-865-4700/V, 814-863-1150/TTY

For reference to the full policy (Policy AD42: Statement on Nondiscrimination and Harassment):
http://guru.psu.edu/policies/AD42.html
SRA 497A Fall 2013: Course Schedule

*ALL Assigned Readings that are indicated on the schedule below should be completed **before** class. Readings are listed in the parentheses next to each topic. All readings can be found in the required texts for the class.

Chapters that start with letters (e.g., G7) are taken from the Joel Best (2008) textbook, whereas chapters listed with the prefix “Chp.” are from the Fox and colleagues (2014) text.

<table>
<thead>
<tr>
<th>Week</th>
<th>Month</th>
<th>Day</th>
<th>Monday</th>
<th>Day</th>
<th>Wednesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug</td>
<td>26</td>
<td>Course Mechanics/ Introduction</td>
<td>28</td>
<td>Descriptive Statistics: Theory (Chp. 2)</td>
</tr>
<tr>
<td>2</td>
<td>Sept</td>
<td>2</td>
<td>NO CLASS – Happy Labor Day!</td>
<td>4</td>
<td>Descriptive Statistics: Theory (Chp. 3 &amp; 4); HW #1 DUE</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td></td>
<td>Descriptive Statistics: Application in SPSS; HW #2 DUE</td>
<td>11</td>
<td>Descriptive Statistics: Critical Thinking (G7; C3); HW #3 DUE</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td></td>
<td>Lab 1</td>
<td>18</td>
<td>Exam 1</td>
</tr>
<tr>
<td>5</td>
<td>23</td>
<td></td>
<td>Hypothesis Testing: Theory (Chp. 5)</td>
<td>25</td>
<td>Hypothesis Testing: Theory (Chp. 6); HW #4 DUE</td>
</tr>
<tr>
<td>6</td>
<td>30</td>
<td></td>
<td>Hypothesis Testing: Critical Thinking (G2-G4) &amp; Application in SPSS</td>
<td>2</td>
<td>Correlation: Theory (Chp. 10); HW #5 DUE</td>
</tr>
<tr>
<td>7</td>
<td>Oct</td>
<td>7</td>
<td>Correlation: Application in SPSS; HW #6 DUE</td>
<td>9</td>
<td>Correlation: Critical Thinking (G9)</td>
</tr>
<tr>
<td>8</td>
<td>14</td>
<td></td>
<td>Lab 2</td>
<td>16</td>
<td>Exam 2</td>
</tr>
<tr>
<td>9</td>
<td>21</td>
<td></td>
<td>Regression: Theory (Chp. 11)</td>
<td>23</td>
<td>Regression: Theory Cont’d; HW #7 DUE</td>
</tr>
<tr>
<td>10</td>
<td>28</td>
<td></td>
<td>Regression: Application in SPSS</td>
<td>30</td>
<td>Regression: Application in SPSS Cont’d; HW #8 DUE</td>
</tr>
<tr>
<td>11</td>
<td>Nov</td>
<td>4</td>
<td>Choosing Statistical Tests</td>
<td>6</td>
<td>Lab 3</td>
</tr>
<tr>
<td>12</td>
<td>11</td>
<td></td>
<td>Diagnosing Problems with Data: Definitions (E1-E4)</td>
<td>13</td>
<td>Diagnosing Problems with Data: Measures (F1-F5)</td>
</tr>
<tr>
<td>13</td>
<td>18</td>
<td></td>
<td>Exam 3</td>
<td>20</td>
<td>In-Class Team Project: Work Day</td>
</tr>
<tr>
<td>14</td>
<td>25</td>
<td></td>
<td>NO CLASS – Happy Thanksgiving!</td>
<td>27</td>
<td>NO CLASS – Happy Thanksgiving!</td>
</tr>
<tr>
<td>15</td>
<td>Dec</td>
<td>2</td>
<td>Exam 1, 2, and 3 Review</td>
<td>4</td>
<td>Exam 1, 2, or 3 Retake (IF NEEDED)</td>
</tr>
<tr>
<td>16</td>
<td>9</td>
<td></td>
<td>Final Presentations DUE</td>
<td>11</td>
<td>Final Presentations DUE</td>
</tr>
<tr>
<td>17</td>
<td>16</td>
<td></td>
<td>FINALS WEEK – NO CLASS</td>
<td>20</td>
<td>FINALS WEEK – NO CLASS</td>
</tr>
</tbody>
</table>

**NOTE:** This syllabus provides a general plan for the course. Deviations will be announced in class and distributed by ANGEL email if and when necessary.