COURSE AND CONTACT INFORMATION
Course: Statistics 6253: Legal Statistics
Semester: Spring 2015
Time: Wednes 3:30-6:00 pm
Location: Rome Hall (Room 459).

INSTRUCTOR
Name: Prof. Joseph L. Gastwirth
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Office hours: Monday 4:30-5:30pm; Wednesday 2:00-3:00 pm.
Tuesday by appointment

COURSE DESCRIPTION
This class will introduce students to the use of statistical analyses in the courtroom environment. Because the U.S. Supreme Court is considering a fair housing case and statistical evidence is used in that area, the first topic will be the use of statistical evidence in a variety of discrimination cases concerning the representativeness of juries, disparate treatment disparate impact in equal employment and fair housing will be covered. A more detailed analysis of two jury discrimination cases from Michigan where the same statistical data was submitted to the Michigan Supreme Court and the Federal Circuit Court but the courts reached opposite conclusions. It will be shown that the statistical measure adopted by the Michigan Supreme Court is not statistically sound. Then we will discuss the classic Baker v. Carr one-person equals one vote case and discuss the statistical measures used to assess the fairness of the apportionment of legislatures. The use of similar measures to evaluate the fairness of real estate assessments will be mentioned. The use of statistics in securities law, e.g. SEC v. Goldman Sachs or a case involving the fairness of allocation of shares in initial public offerings (were certain investment companies who shared profits with the brokerage firm favored in obtaining shares in profitable IPOs?).

Depending on the interests of the class and on whether other cases involving statistical evidence are taken up by the Supreme Court or other major courts several topics from the following list will be discussed.
1. Statistical methods used in determining damages, e.g. lost wages. The “loss of chance” approach used to compensate individuals harmed in tort law or who lost an opportunity to be hired or promoted in discrimination cases will be stressed.
2. The use of survey evidence in commercial litigation, especially trademark infringement cases. The recent Tiffany v. eBay surveys may be discussed as they were flawed and did not convince the trial judge that the problem of “fake” Tiffany items offered on the internet site was sufficiently severe.
3. The role of epidemiologic studies in product liability cases and occupational health regulation.
4. Two years ago, the class reviewed statistical aspects of the recent case concerning the renewal of the Voting Rights Act. It appears that the U.S. government may now try to use a different section, which was not invalidated by the decision of the U.S. Supreme Court, to ensure that minority members are able to vote. If the new cases also involve statistical evidence, it might be interesting to evaluate the methodology used by both sides. In particular, measures of vote dilution may be relevant.

5. Measures of segregation are relevant to fair housing and fair educational opportunity cases. For example, are minority teachers predominantly assigned to schools with a high proportion of minority students? The U.S. Supreme Court will consider a fair housing case from Mt. Holly, N.J., so measures of segregation may be relevant to that decision.

6. An introduction to forensic evidence, e.g. the accuracy of narcotics dog alerts and DNA.

7. The standards for the admissibility of an expert report (including statistical analyses) that one must meet, e.g. the guidelines the Supreme Court established in *Daubert* and subsequent opinions.

Methods for assessing criticisms of studies and their use in examining “explanations” of statistical disparities that are offered in rebuttal to statistically significant findings will be emphasized. Quite often one side points out a minor flaw but courts fail to assess its potential impact on the ultimate inference.

Pre-requisite: Students should have a previous course in statistics, including some knowledge of simple linear regression and experience with a statistical package, e.g. SAS, SPSS or R. Students will choose a project dealing with the analysis of data from a case or regulatory hearing that is appropriate to their background. Thus, doctoral students will be expected to utilize more advanced statistical methods than master’s students or advanced undergraduates. Similarly, students with a modest background will only be expected to analyze data using the programs discussed in class. More advanced students will be encouraged to modify or expand on those programs. It may turn out that the class, subdivided into groups will work on a small project with the Professor that will be chosen after the first few classes. To some extent the topics considered for projects will depend on the statistical issues that arise in current cases or studies of the legal process.

**COURSE PREREQUISITE(S)**

Students should have completed at least one year of basic statistics plus familiarity with basic regression methods. Also, students should be acquainted with one statistical package in order to reanalyze the data discussed.

**TEXTS** (recommended)

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<tr>
<th>Author</th>
<th>Title</th>
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<tbody>
<tr>
<td>Gastwirth, J.L.</td>
<td>Statistical Science in the Courtroom</td>
<td>(1st)</td>
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<tr>
<td>Gastwirth, J.L.</td>
<td>Statistical Reasoning in Law and Public Policy</td>
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LEARNING OUTCOMES
As a result of completing this course, students will be able to:
1. Identify how a statistical study can clarify the main factual issues that arise in legal cases.
2. Carry out a statistical analysis on real data and write a summary report of the major findings.
3. Understand the role sound statistical or other quantitative analyses can have in aiding courts in reaching sound decisions.

GRADING
[List what will be counted and percentages. For example:
- Paper and Presentation of Project (50%)
- Homework, including statistical programming (30%),
- Class Participation (20%)

CLASS POLICIES
Attendance policy (you will need to attend virtually all of the classes as participation is essential in seminar type classes).
Late work: You are expected to hand in any work on time but can obtain an extension due to legitimate reasons (illness or difficulty in locating the relevant cases and data).
There will not be a formal exam in this class but students will be expected to work seriously on their project and share their findings with the class.
Religious Holidays: The University policy with regard to religious holidays will be followed. Please inform the Professor in advance so that any needed accommodation can be made.

ACADEMIC INTEGRITY
I personally support the GW Code of Academic Integrity. It states: “Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see:
http://www.gwu.edu/~ntegrity/code.html

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM
DISABILITY SUPPORT SERVICES (DSS)
Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: http://gwired.gwu.edu/dss/

UNIVERSITY COUNSELING CENTER (UCC) 202-994-5300
The University Counseling Center (UCC) offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include:
- crisis and emergency mental health consultations
- confidential assessment, counseling services (individual and small group), and referrals
  [http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices](http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices)

SECURITY
In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.