Course Title: Health Services and Policy Research Methods
Course Number: HSAP 0614J
Course Location: Computer lab in SPH building in Piscataway
Course Date & Time: Wednesday, 6:00 p.m.- 8:00 p.m.
Course Instructor: Irina B. Grafova, Ph.D, Assistant Professor, grafovib@sph.rutgers.edu, 848-932-8052, IFH Building, Room 418
Office Hours: 5-6 p.m. Wednesday at the computer lab at SPH or by Appointment
Course Assistant: N/A

Additional/Supplemental Readings/Resources:

- Required readings will consist of textbook reading and journal article reading. Rachel Gordon textbook that is referenced in the syllabus as “RG” covers not only topics discussed at lectures but also guides how to use Stata and Excel in data analysis that will be helpful for lab sessions.
- For some basic statistical models learnt in the Core Biostatistics class, we will use chapters from the core Biostatistics textbook referenced in the syllabus as “WD”: Biostatistics: A Foundation for Analysis in the Health Sciences, 10th Edition. Wayne W. Daniel, Wiley, 2013. ISBN 978-0-470-10582-5
- Journal articles used as examples are drawn from peer-reviewed journals from a variety of fields, including public health, health economics, epidemiology, and demography.

Course Description: A great deal of health services and applied health policy research is based on the analysis of publicly available surveys of households, providers, and other institutions as well as analyses of administrative records. This course is designed to introduce students to the foundations of such secondary data analysis.

The course will begin by introducing students to examples of survey data that are nationally representative or representative of state-specific populations, along with examples of data from administrative records. Students will learn how to conduct descriptive analyses of such data. Then, the course will concentrate on the Ordinary Least Squares (OLS). Using OLS as an estimation framework, students will learn about estimation issues common to various methods of regression analysis.

The course is structured so that a theoretical discussion of a particular technique or estimation issues is followed by practical labwork exercises applying these techniques.
Selected Department Competencies Addressed: Each Department identifies competencies for each degree offered. The competencies addressed in this course for the MPH for the Department of Health Systems and Policy include:

- Use economic theories, concepts and methodologies in the analysis and evaluation of current health care issues and problems
- Apply quantitative and qualitative research methods in the analysis of health service and policy issues
- Assess and delineate public health policies and practices recognizing legal and ethical implications for individuals and populations

Please visit the Concentration webpages on the School of Public Health’s website at sph.rutgers.edu for additional competencies addressed by this course for other degrees and concentrations.

Course Objectives: By the completion of this course, students will be able to:

- identify and address methodological and estimation challenges in data analysis
- conduct descriptive secondary data analysis
- conduct basic Ordinary Least Squares regression analysis

Course Requirements and Grading: In this section, Instructor should include

Student class and discussion participation 5%
Home works* 40%
Midterm 25%
Final 30%

# Note that there will be 9 home works in total. The grade for the lowest scored homework will be dropped. The grades for the other 8 home works will added together for the home work part of the final grade.

Student class and discussion participation grades will be based on attendance at lectures and comments and discussion of assigned readings in class.

Attendance is required and will be counted toward your final grade. Under exceptional circumstances, if a student needs to miss class, arrangements should be made in advance with the instructor.

No late assignments will be taken unless accompanied by a doctor’s written note or unless approved by the instructor beforehand.

The schedule provided is only tentative and the instructor reserves the right to make any changes in the schedule. These changes will be announced in class.

Course Schedule:
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<th>Session</th>
<th>Dates</th>
<th>Lecture Topic</th>
<th>Computer lab</th>
<th>Homework assigned</th>
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<td>1/17</td>
<td>Secondary Data in Health Services and Policy Research</td>
<td>Exercise 1: Trend Plots in Excel</td>
<td>HW1</td>
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<tr>
<td>2</td>
<td>1/24</td>
<td>Mathematics review</td>
<td>Exercise 2: Column Charts in Excel</td>
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<td>3</td>
<td>1/31</td>
<td>Summarizing Binary and Continuous Variables</td>
<td>Exercise 2: Column Charts in Excel</td>
<td>HW2</td>
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<td>4</td>
<td>2/7</td>
<td>Measuring Data Dispersion</td>
<td>Exercise 3: Introduction to Stata</td>
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<tr>
<td>5</td>
<td>2/14</td>
<td>Identifying causality</td>
<td>Exercise 3: Introduction to Stata</td>
<td></td>
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<tr>
<td>6</td>
<td>2/21</td>
<td>Midterm</td>
<td>Exercise 3: Introduction to Stata</td>
<td>HW3</td>
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<td>7</td>
<td>2/28</td>
<td>OLS: best way to draw a line</td>
<td>Obesity Project: Task 1 Exploring Data Set</td>
<td>HW4</td>
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<td>8</td>
<td>3/7</td>
<td>OLS properties; OLS functional forms (part 1)</td>
<td>Obesity Project: Task 2 Create Height Measures</td>
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<td>9</td>
<td>3/14</td>
<td>Spring break</td>
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<td>10</td>
<td>3/21</td>
<td>OLS functional forms (part 2) omitted variable bias (part 1)</td>
<td>Task 3 Creating Body Weight Status Measures</td>
<td>HW5</td>
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<tr>
<td>11</td>
<td>3/28</td>
<td>OLS omitted variable bias (part 2)</td>
<td>Task 4 Descriptive Statistics Analysis</td>
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<td>12</td>
<td>4/4</td>
<td>OLS outliers (part 1)</td>
<td>Task 5 Regression Analysis</td>
<td>HW7</td>
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<td>13</td>
<td>4/11</td>
<td>OLS outliers (part 2)</td>
<td>Task 5 Regression Analysis, continued</td>
<td>HW8</td>
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<tr>
<td>14</td>
<td>4/18</td>
<td>Summarizing obesity project results</td>
<td>Task 5 Regression Analysis, finalized</td>
<td>HW9</td>
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<tr>
<td>15</td>
<td>4/25</td>
<td>Review session</td>
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Readings for lectures

Week 1: Secondary Data in Health Services and Policy Research
- RG: chapter 2

Week 2: Mathematics review

Week 3: Summarizing Binary and Continuous Variables
- WD: 2.4

Week 4: Measuring Data Dispersion
• WD: 2.5, 5.2-5.3, 6.2-6.6
http://dx.doi.org/10.1016/j.ehb.2012.02.004 .
(http://www.sciencedirect.com/science/article/pii/S1570677X12000263)

Week 5: Identifying Causality
• RG: 10.2

Week 6: Midterm

Week 7: Ordinary Least Squares (OLS): best way to draw a line
• RG: chapter 5
• Reinforcement chapters: sections 9.1-9.5 or 10.1-10.5 in WD

Week 8: OLS properties; OLS functional forms (part 1);
• RG chapter 5 finish, chapter 9
• WD: 11.2

Week 9: Spring Break, no class

Week 10: OLS functional forms (part 2); omitted variable bias (part 1)
• RG chapter 9, section 10.2-10.3

Week 11: OLS omitted variable bias (part 2)
• RG section 10.2-10.3
Week 12: OLS outliers (part 1)
- RG: section 11.1

Week 13: OLS outliers (part 2)
- RG: sections 11.1

Week 14: Review session

Exercise 1 Creating and interpreting trend plots using Excel
We will use trends plots to try to explain seemingly conflicting results presented in two recent papers.
Papers for exercise 1:

Exercise 2 Creating and interpreting column charts using Excel
We will use column charts to demonstrate how they can be used to compare variables of interest by various categories. The exercise is based on the data on lack of health insurance from the 2012 National Health Interview Survey.

Data Analysis Project: Obesity Growth in the United States 1986-2011
Using the 1986 and 2011 waves of the Panel Study of Income Dynamics (PSID) data this project will analyze obesity and overweight prevalence and dynamics in 1986-2011 time period. During the class the students will be working with the 2011 wave and then they will have home works that would be asking students to repeat what was done in class for the 1986 wave. Comparison of the analysis results for both waves would give insights on recent obesity dynamics in the U.S. This is a multi-session project where the students will learn step by step how to generate new variables, how to describe data and how to analyze using various descriptive analysis tools as well as regression analysis tools.
GR textbook contain references to Stata throughout textbook. It also sections of the book (as listed below) that are dedicated to statistical softwares.
- RG textbook chapter 4
- RG textbook appendixes A,B, F
Student access to Stata

1) Students can access Stata in the SPH computer lab.
2) Students can also access Stata in other Rutgers computer labs. [https://oit-nb.rutgers.edu/labs](https://oit-nb.rutgers.edu/labs) has a list of locations and hours and all of the labs have access to Stata.
3) In addition, [Apps.rutgers.edu](http://Apps.rutgers.edu), an OIT University-wide service, provides remote access to software packages like Stata and much more for students, faculty, and staff. Users can just point their browser at [http://apps.rutgers.edu/](http://Apps.rutgers.edu) from their computer whether they are on campus using RUWireless or working from home using a high speed network connection. To review basic documentation for this capability, go to [https://oit.rutgers.edu/software/remotexserver/](https://oit.rutgers.edu/software/remotexserver/) to learn how to gain access and use Apps. For more information, contact oirt@rutgers.edu.

 Learning Management System: Moodle will be used extensively throughout the semester for course syllabus, assignments, announcements, communication and/or other course-related activities. It is the student’s responsibility to familiarize themselves with Moodle and check it regularly. If you have difficulties accessing Moodle, please inform the instructor and Moodle Support (moodlehelp@ca.rutgers.edu). Moodle is accessible at moodle.rutgers.edu.

School of Public Health Honor Code: The School of Public Health Honor Code is found in the student bulletin (sph.rutgers.edu/academics/catalog/index.html). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another’s work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the school community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

Students with Disabilities: Rutgers University welcomes students with disabilities into all of the University’s educational programs. In order to receive consideration for reasonable accommodations, a student must Apply for Services by first completing a Registration Form with the Rutgers Office of Disability Services (ODS) at ods.rutgers.edu. The student will also be required to participate in an ODS intake interview and provide documentation. If reasonable accommodations are granted, ODS will provide you with a Letter of Accommodations which should be shared with your instructors as early in your courses as possible.

Graduate Student Computer Policy: Students are required to possess a personal laptop, no older than approximately two years, that must meet minimum requirements which may be found online at: sph.rutgers.edu/student_life/computer_requirements.html

Policy Concerning Use of Recording Devices and Other Electronic Communications Systems: When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.
Withdrawal/Refund Schedule: Students who stop attending their course(s) without processing an Add/Drop Course form will receive a failing grade. Furthermore, students dropping to zero credits for the semester are considered withdrawn and must submit a completed Leave of Absence form from the School of Public Health’s Office of Student Affairs. The School of Public Health refunds tuition only. Administrative and technology fees are non-refundable. You may find the Withdrawal/Refund Schedule on the School of Public Health website at: sph.rutgers.edu/academics/registration/school_calendars.html