

Statistical Computation and Software (BE7011 and PH7011)

Summer 2017

Department of Environmental Health
University of Cincinnati

Message to Students:

This course is listed as a required course for Master of Public Health Program, Epidemiology Concentration. Yet MPH students in other concentrations or other graduate level students are welcome to attend. Undergraduate students may be allowed to attend after consulting with the course instructor. This is a one credit course, designed to provide some basic knowledge and skills in statistical computation using three different software packages: SAS, SPSS and R. For SAS, the class will offer computation using both SAS Program and SAS Enterprise. Many times students find instructors using different statistical software in their classes, especially the statistic and epidemiologic classes. It becomes challenging for students to take these courses and learn the software packages at the same time. Sometimes students find two similar classes may use different software packages simply because of different preference of the instructors. In this class, the students will learn how to use different software solve the same problem from the same dataset. That way they will have a better sense how these software packages are connected and be more confident in computation when they take other statistic and epidemiologic classes. In addition, such experience will be a plus in their resume when students put three software packages in their skill setting.

Course Objectives:

By the completion of this course, students will

1. Learn to import/export data from different software packages;
2. Use graphical methods to describe sample data;
3. Summarize data using descriptive statistics;
4. Perform hypothesis testing and confidence interval on one sample data;
5. Perform hypothesis testing on two, or more than two samples;
6. Use regression and correlation techniques to examine linear relationships in data;
7. Compare proportions using a Chi square test.

Course Description:

The goal of the course is to introduce statistical computation using different software packages. Students will learn statistical computation related to other Biostatistical courses in this class. The course may be more effective if students take the Introduction to Biostatistics (BE7022 / PH7010) simultaneously in the same term.

Course website:

Course materials will be available in the Blackboard
meta_yingj_872: (Meta 2175) STATISTICAL COMPUT SOFTWARE (001)

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Contacts:

1. For questions related to learning modules (including SAS/EXCEL modules and in-class exercise modules), please contact the Online Coordinator by email.
2. For questions related to class notes, homework assignments, please contact TA's by email or set up a face to face meeting.
3. For questions backboard, virtual lab (using SAS) or other tech related issues, please contact the UCIT for help.
4. Other requests and questions can be raised to the Instructor directly by email. Please make sure to put "**17US Stat Software**" in the title.

Textbook and Readings:

There is NO required test book for this class.

Statistical Software:

The class will teach SAS Enterprise, SAS Program, SPSS and R in statistical computation and analysis. You can consider access to the software from the following sources:

1. Purchase a SAS license from UCit GetIT or UC book store (preferred)
<https://www.uc.edu/ucit/services/hardware-software/facstaff-software/sas.html>
2. Purchase a SPSS license from UCit GetIT or UC book store (preferred)
<https://www.uc.edu/ucit/services/hardware-software/facstaff-software/sas.html>
3. Download and install R for FREE <https://www.r-project.org/>.
4. Use SAS, SPSS and R from UC Virtual Lab for Free
<https://kb.uc.edu/KBArticles/UCVLabs-Windows.aspx>

Notice:

- (1) The class has no obligation of support on software installation and online access. Students should contact UCIT or IT support of your department for information regarding SAS and SPSS licenses, virtual lab, and downloading and installation of R.

Prerequisite:

There is NO prerequisite for this class.

It is expected students know basic calculus and have some basic knowledge of using EXCEL. The class is more effective if it is taken at the same time with the Introduction to Biostatistics (BE7022 / PH7010).

Course Format:

Online class with Learning Modules, Class Notes offered in the Blackboard.

Leaning Modules:

Learning Modules are posted on each **Friday morning, starting on 6/2/2017**, and required to complete reading **before Thursday mid night** of the next week. Evidence of completing modules on time will be counted as a portion of the course grade.

WebEX Sessions:

There will be 2 WebEX meetings in the term. Please see Table2 for details of schedules. The WebEX will be recorded and posted in the blackboard afterwards. Students are encouraged to attend the WebEX sessions for information and instructions related to the course.

Assignments:

There will be 8 homework assignments for the class. Schedules of posting dates and due dates are available in Tables3. All homework assignments will be submitted to the Blackboard only. Email submission will NOT be accepted unless pre-approved by the instructor.

Criteria Included for Evaluation and Determination of Grade:

- 1. Learning modules each week 40%
- 2. Homework 60%

Content of Course and Schedule (see Tables 1-3 below):

Table1 Contents of course

Week	Dates	Contents	Module
1	6/2-6/8	Know your software, import / export data	Pre Notes 1 and 2; Note1
2	6/9-6/15	Data management	Note2
3	6/16-6/22	Histogram and Box plot	Note3
4	6/23-6/29	Summary Statistics	Note4
5	6/30-7/6	Inference (CI and HT)	Note5
6	7/7-7/13	Comparing Means	Note6
7	7/14-7/20	ANOVA	Note7
8	7/21-7/27	Comparing Proportions; Regression	Note8; Note9

Table2 Schedule of 3 WebEX sessions

Week	Date	Time	Format
1	6/2/2017	4:00-5:00	WebEX Session1
8	7/28/2017	4:00-5:00	WebEX Session2

Table3 Schedule for homework (HWK), in-class exercise and final project

HWK List	Posted Date	Due Date
HWK1	6/2/2017	6/8/2017
HWK2	6/9/2017	6/15/2017
HWK3	6/16/2017	6/22/2017
HWK4	6/23/2017	6/29/2017
HWK5	6/30/2017	7/6/2017
HWK6	7/7/2017	7/13/2017
HWK7	7/14/2017	7/20/2017
HWK8&9	7/21/2017	7/27/2017

Attendance and Participation Policy:

1. Modules will be completed on time in each week specified in Tabl1. The attendance will be checked based upon the log information of each module. Missing one module on time will cause a deduction of 4 points from the final score.
2. ***WebEX sessions are encouraged to attend. They are recorded and make available on the BB afterwards for students to watch. It is students' responsibility to attend or watch the WebEX session on time in order to catch information relevant to the classes. Failing to do so may cause difficulties to understand contents related to modules, notes and homework assignments and students will have to bear the cost themselves as the consequence.***
3. Late submission of an assignment will receive 0 point unless it is pre-approved by the instructor.
4. ***Missing 3 module deadlines or missing 2 assignments will automatically receive an "I" (incomplete) from the course.***

Academic Integrity: All students shall comply with the Code of Student Conduct of the University of Cincinnati (UC) http://www.uc.edu/conduct/Academic_Integrity.html. Academic misconduct will be zero tolerated in this course. Regardless of the type of assignment, students found responsible for violating the UC Academic Integrity Policy will receive an "F" for the course. All violations will be forwarded to the Office of University Judicial Affairs, Department of Student Life where a university disciplinary file will be created.