I. COURSE DOMAIN AND BOUNDARIES

This course will provide an introduction to the SAS statistical package in a Windows environment. Students will learn the basics of data management and manipulation through hands-on tutorials. Topic will include importing/exporting data, merging datasets, recoding variables, simple statistical analyses and troubleshooting. At the end of the course, students will have the skills necessary to use SAS for advanced biostatistics and epidemiology courses. Prerequisites for the course are the completion of S55-5003 Foundations of Public Health: Biostatistics and S55-5000 Research Methods. This course is strongly recommended for students taking S55-5011 Epidemiology Methods.

II. MPH COMPETENCIES

Knowledge gained in this course will provide a basis for meeting the following MPH program competencies:

This course will touch on the following competencies:

Epidemiology

- Define and interpret a public health problem in terms of magnitude, person, time, and place.
- Calculate basic epidemiology measures of disease frequency and association.

Biostatistics

- Understand the basic concepts of probability, variation, and inference.
Knowledge gained in this course will provide a basis for meeting the following MPH program competencies:

- Apply descriptive and inferential techniques according to the type of study design for answering a particular research or practice question.
- Prepare clear and effective graphical and tabular summaries of basic statistical analysis

III. BROWN SCHOOL ACADEMIC POLICIES

Academic Integrity: Academic integrity in the completion of tests, oral presentations and written assignments (including statistical syntax) is expected. Violations of academic integrity (e.g., plagiarism) are very serious offenses. Violations will result in notification to the Assistant Dean for the appropriate (MSW or MPH) program and may result in referral to the Academic and Professional Integrity Committee, which could lead to dismissal from the program. Please review and adhere to the entire set of Academic Integrity guidelines in the student handbook on Inside Brown:

Student Handbook 2017-2018

Accommodations: If you have a learning disability, sensory, or physical disability or other impairment, and you may need special assistance in lectures, reading, written assignments, and/or exam taking, please contact the Brown School Director of Student Affairs who can provide coordination of accommodations at Washington University and the Brown School. The Disability Resource Center, a University-wide resource, provides diagnostic and academic accommodations support and referrals.

English Language Proficiency: If your English language proficiency is such that you may need special assistance in lectures, reading, written assignments, and/or exam taking, please communicate these needs to your instructor who may refer you to the English Language Program (ELP), a University-wide resource which provides classes and academic English language support designed to increase non-native English speaking students' English language proficiency and to facilitate their academic success at Washington University. You may also find the Academic Assistance resources available through the Office for International Students and Scholars to be helpful.

Professional Use of Electronic Devices in the Classroom: Computers or other electronic devices, including “smart pens” (devices with an embedded computer and digital audio recorder which records the classroom lecture/discussion and links that recording to the notes taken by the student), may be used by students at the discretion of the faculty member to support the learning activities in the classroom. These include such activities as taking notes and accessing course readings under discussion. If a student wishes to use a smart-pen or other electronic device to audio record lectures or class discussions, they must notify the instructor in advance of doing so. Permission to use recording devices will be at the discretion of the instructor, unless this is an accommodation approved by Disability Resources.

Nonacademic use of laptops and other devices is distracting and seriously disrupts the learning process for everyone. Neither computers nor other electronic devices are to be used in the classroom during class for non-academic reasons. This use includes emailing, texting, social networking, and use of the Internet. The use of cell phones during class time is prohibited, and they should be set on silent before class begins. In the case of an emergency, please step out of the room to take the call. The instructor has the right to hold students accountable for meeting these expectations, and failure to do so may result in a loss of participation points, a loss of the privilege of computer use in the classroom, or being asked to
leave the classroom.

**Religious Holidays:** The Brown School recognizes the individual student’s choice in observing religious holidays that occur during periods when classes are scheduled. Students are encouraged to arrange with their instructors to make up work missed as a result of religious observance, and instructors are asked to make every reasonable effort to accommodate such requests.

**IV. WASHINGTON UNIVERSITY ACADEMIC SUPPORT POLICIES**

**Accommodations based upon sexual assault:** The University is committed to offering reasonable academic accommodations to students who are victims of sexual assault. Students are eligible for accommodation regardless of whether they seek criminal or disciplinary action. Depending on the specific nature of the allegation, such measures may include but are not limited to: implementation of a no-contact order, course/classroom assignment changes, and other academic support services and accommodations. If you need to request such accommodations, please direct your request to Kim Webb (kim_webb@wustl.edu), Director of the **Relationship and Sexual Violence Prevention Center**. Ms. Webb is a confidential resource; however, requests for accommodations will be shared with the appropriate University administration and faculty. The University will maintain as confidential any accommodations or protective measures provided to an individual student so long as it does not impair the ability to provide such measures.

If a student comes to me to discuss or disclose an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if I otherwise observe or become aware of such an allegation, I will keep the information as private as I can, but as a faculty member of Washington University, I am required to immediately report it to my Department Chair or Dean or directly to Ms. Jessica Kennedy, the University’s Title IX Director. If you would like to speak with directly Ms. Kennedy directly, she can be reached at (314) 935-3118, jwkennedy@wustl.edu, or by visiting the **Title IX office** in Umrah Hall. Additionally, you can report incidents or complaints to the Office of Student Conduct and Community Standards or by contacting WUPD at (314) 935-5555 or your local law enforcement agency. See: **Title IX**

You can also speak confidentially and learn more about available resources at the Relationship and Sexual Violence Prevention Center by calling (314) 935-8761 or visiting the 4th floor of Seigle Hall. See: **RSVP Center**

**Bias Reporting:** The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University’s Bias Report and Support System (BRSS) team. See: **brss.wustl.edu**

**Mental Health:** Mental Health Services’ professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See **shs.wustl.edu/MentalHealth**

**Additional Issues or Concerns:** If you feel that you need additional supports in order to be successful in your time at Brown, beyond the afore mentioned accommodations, please contact Essie Rochman, Director of Student Affairs at erochman@wustl.edu. She can assist you in navigating a myriad of concerns. Her office is in Brown Hall, room 320.
V. SOFTWARE, TEXTS, AND READINGS

**Software:** Students are expected to have SAS 9.4 loaded on their personal laptops. A one-year SAS license is available at a discounted price through Washington University: http://sl.wustl.edu/catalog/index.php?area=4&id=17&cat=6&subcat= (this link only works on campus)

It is also acceptable to use SAS University Edition (UE), which is free: http://www.sas.com/en_us/software/university-edition.html. However, it is important to note the following: (a) the program can be difficult to install and to get up and running; (b) the professor will not devote class time to troubleshooting SAS UE; and (c) SAS UE is not the same as SAS 9.4 – among other things, it cannot handle large datasets.


*The library has an electronic copy of this book*

VI. ORGANIZATION OF THE COURSE

This course will consist of primarily of self-guided tutorials and lab assignments.

VII. ROLE OF FACULTY AND STUDENT

Students will:

- Arrive to class on time and attend all class sessions (to receive a passing grade, you must attend at least 4 out of five class sessions; if you miss a class session, it must be arranged with the instructor in advance, and you must demonstrate that you have completed the in-class modules)
- Be attentive during class lectures and participate in the in-class exercises
- Complete all assignments and submit them on time

The instructor will:

- Come to class prepared, organized, and enthusiastic.
- Be available to answer any questions that you may have about the course. Please feel free to contact me to discuss any issues concerning the course. Email is the best way to contact me.
- Retain the right to change the content and order of the lectures and exercises to meet the needs of the students who are enrolled in the course.

VIII. ASSIGNMENTS AND GRADING CRITERIA

**Grading:** Final grades will be based on the proportion of points earned from the five lab assignments (70%), in-class exercises (20%), and participation (10%).

**Lab Assignments:** You will complete 5 lab assignments based on the material covered in class. Hard copies of these assignments should be submitted by the start of class (9:00 AM) on the day they are due.
I will give half credit for lab assignments turned in late but within 24 hours of the due date and time. I will not give credit for assignments turned in more than 24 hours late.

In-class exercises: each learning module contains exercises that students will complete in class with the aid of the instructor. Student answers to these exercises are to be submitted to the professor via Blackboard at the end of each class session. In-class exercises will be graded for completeness rather than accuracy.

Participation: To receive full credit for participation, you are expected to come to every class, arrive on time, and stay on task during class.

Grade Scale:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-100</td>
<td>A</td>
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<tr>
<td>90-94</td>
<td>A-</td>
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<td>88-89</td>
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<td>77-79</td>
<td>C+</td>
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<td>74-76</td>
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<tr>
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<td>C-</td>
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<td>≤ 69</td>
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### IX. COURSE OUTLINE

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Topics</th>
<th>Assignments due</th>
</tr>
</thead>
</table>
| 1   | 1/17 | Introduction to SAS  
        Module 1: SAS Libraries  
        Module 2: Examining SAS datasets | None |
| 2   | 1/24 | Module 3: How to get your data into SAS  
        Module 4: Formats | #1 |
| 3   | 1/31 | Module 5: Manipulating Data | #2 |
| 4   | 2/7  | Module 6: Combining Data Sets  
        Module 7: Visualizing data | #3 |
| 5   | 2/14 | Module 8: Data analysis: Descriptive statistics  
        Module 9: Data analysis: Bivariate | #4 |
|     | 2/21 |        | #5 |
