Course Philosophy and Expectations. Some of you will produce or use statistics in your life’s work and some of you won’t. We are, however, all consumers/victims of statistics. We listen to our insurance agent when purchasing insurance. We do (do not) drink coffee because it can prevent (cause) cancer. We choose to attend college because statistics tell us we will make more money in the future. Even if you personally do not consult statistics when making a decision other people often use statistics to make choices for us. This situation occurs when decision makers form public policy, healthcare providers give advice, and experts select safety features for cars – the list is endless. And of course, statistics is at the core of psychological and behavioral research. This course will provide you with a foundation in statistical thinking and practice. At the end of the semester, I hope that this will help you avoid common errors in human judgment and decision-making, to understand the basis for many public policy and other decisions that affect you, and to understand an important component of psychological research. It will also serve well those of you who go on to more advanced courses in statistics, experimental design, or research methods.

Treat this course as a combination of mathematics, psychology, and logic. We will assume that you have an introductory-level background in psychology, a working high school knowledge of algebra, and no prior training in logic. We will focus on concepts and theory rather than on tedious calculations. But you will still have to do calculations.

This is not a cookbook course. Simple memorization or merely learning how to plug numbers into formulas will not get you very far in this course. Lectures, homework, and exams will involve thinking critically and conceptually about a statistical problem and then applying formulas and numerical calculations to the problems.

The only way to get a handle on this material is to work with it, which means actively studying on a regular basis. We expect you to gain a good understanding of statistics and statistical thinking, not simply learn how to plug numbers into formulas. The most effective way to learn is to devote a fixed amount of study time to the course on each of three to six days a week. For
a few of you, two or three hours distributed over the week may be enough, many of you will require four to six hours per week, and a few of you may require more time. Study actively, not passively: Do problems, complete assigned activities, and test yourself as you go along. Small study groups are a good idea for some people. We will assign homework to be handed in every week. In addition, do the practice problems in the text, answer the questions at the end of each chapter, do the additional problems at the end of each chapter, and actively use the study guide. The material is cumulative. Do not let yourself get behind, as each topic builds on the previous one.

Upon successfully completing this course, you will have a good understanding of descriptive statistics, as well as a basic, theoretically grounded understanding of probability theory and of the principles of research design and inferential statistics. You will be able to summarize data, do simple statistical tests, better understand statistical aspects of news reports, and be prepared for more advanced courses if you want to take them. In addition, you will understand some of the errors that people usually make in reasoning about uncertainty and be in a position to avoid them.

Ask questions in lecture. You will learn much better if you think actively about the material. If you don’t understand something, ask right away. Almost certainly, someone else will have the same question.

Homework. Homework is due as indicated in the syllabus (usually on Thursdays) and will not be accepted if it is late (anytime after the class in which the assignment is due ends). There will be absolutely no exceptions to this rule. Problems and questions will be assigned typically on Thursdays in class and will be posted on the website. Answer sheets will be posted on the website after class on the day the assignment is due. Homework will be graded and handed back by the next class meeting.

Your homework grade will consist of two parts. First, you will receive 1 point for each problem or problem cluster for which you show a serious work attempt. In addition, for each assignment, one problem or problem cluster will be randomly selected for grading on a 0-3 scale. The points you earn will then be turned into a percentage score,

\[ \% \text{ score} = \frac{\text{points you earned}}{\text{total possible points}}. \]

Exams and Grading. Your course grade will depend on three exams, each covering about one-third of the material, and on the homework. In addition, there will be an optional exam that you can take to try to improve your grade. Specifically, there will be two one-hour exams during the term and a one-hour exam at the final. These exams will not be cumulative; each will cover only the material since the previous exam. In addition, at the time of the final exam, there will be an optional one-hour exam on the first two-thirds of the course. If you elect to take that test and achieve a higher grade than you had on either of the first two exams, the optional exam grade will replace the lower of your two earlier grades.

Approximately half of the exam questions will come from the textbook, the study guide, and the homework. Of course the problems will have different numbers. The remaining will be new questions.

Your course grade will be calculated as
Grade = .35 * High Test + .30 * Mid Test + .20 * Low Test + .15 (Ave homework + Extra Par Pnts)

High test refers to the highest of your three test grades (the final exam and the two highest grades from the first two exams and the optional exam. Mid Test refers to the middle of the three grades. And Low Test refers to the lowest of the three grades.

Each of the exams will be worth 100 percentage points.

Ave Homework represents your average homework grade. Recall, the homework will be scaled so that a perfect score equals 100 percentage points.

Extra Par. Pnts represents the opportunity to participate in 5 experiments for an additional 15 percentage points (3 points each). These extra points will be added to your homework grade. Consequently, you can get a 115% in the homework category.

Your course grade will be converted to a letter grade as follows:

<table>
<thead>
<tr>
<th>Real Limits</th>
<th>92.5</th>
<th>87.5</th>
<th>82.5</th>
<th>77.5</th>
<th>72.5</th>
<th>67.5</th>
<th>59.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Grade</td>
<td>A</td>
<td>B+</td>
<td>B</td>
<td>C+</td>
<td>C</td>
<td>D+</td>
<td>D</td>
</tr>
<tr>
<td>Numerical Grade</td>
<td>4.0</td>
<td>3.5</td>
<td>3.0</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

The grading rules are precise and generous and therefore there will be no exceptions to them.

**Special instructions about volunteering as a human participant for extra credit.** You have the opportunity to earn up to an extra 15 percentage points in the homework category by participating in psychology experiments being conducted here at MSU. So yes if you get 100% on all the homeworks and complete all the extra participation points then you will get 115% in the homework category.

Instructions for volunteering are given at the end of the syllabus. **Participating in these experiments is completely voluntary.** Consequently, if you conscientiously object to participating in these experiments there are several alternative methods for you to earn an equivalent set of extra credit points. Please talk to me for a list of these possibilities.

To earn the 3 points for each experiment you must do 2 things:
1. Earn 1 point for participating in the experiment. I will be informed at the end of the semester via the experimental sign-up computer system.
2. Earn 2 point for writing a short paragraph about study that addresses the following questions:
   a. What was the scientific question the study sought to answer?
   b. How were the “things” of interest operationalized in the study?
   c. What were the independent and dependent variables?
   d. Was the study observational or experimental?
   e. What was the experimental design of the study? Was it between-participants or within-participants?
   f. What are the planned statistics for the study? Regression analyses? Analysis of
To answer these questions ask the experimenter. Also consult Chapter 12 in your book. Please turn your paragraphs in to Ms. Reed by December 6, 2007.

**Angel Page.** We have established an angel page. All class materials, including this syllabus, will be posted there and can be downloaded. Slides used in lecture will be available in pdf format after the lecture under the notes folder.

Posted homework assignments will be in pdf format under the homework folder. Other material will be made available as warranted.

I am still learning about Angel so this will most likely change and be updated as I become more experienced with the system.

**Textbooks.** The books listed below are required and at the campus bookstore.


<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Assignment</th>
<th>HW Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28-Aug-07</td>
<td>Introduction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>30-Aug-07</td>
<td>Basic Math &amp; Measurement</td>
<td>Ch 1</td>
<td>HW 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Descriptive Statistics</td>
<td>Ch 2 / Ch 4 (p. 79-87)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>04-Sep-07</td>
<td>Frequency Distributions/Stem &amp; Leafs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>06-Sep-07</td>
<td>Central Tendency &amp; Variability</td>
<td>Ch 3</td>
<td>HW2</td>
<td>HW1</td>
</tr>
<tr>
<td>5</td>
<td>11-Sep-07</td>
<td>Question and Answer Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>13-Sep-07</td>
<td>Percentiles points &amp; percentile ranks</td>
<td>Ch 5</td>
<td>HW 3</td>
<td>HW2</td>
</tr>
<tr>
<td>7</td>
<td>18-Sep-07</td>
<td>Percentiles and standard scores</td>
<td>Ch 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>20-Sep-07</td>
<td>Regression</td>
<td>Ch 6</td>
<td>HW 4</td>
<td>HW3</td>
</tr>
<tr>
<td>9</td>
<td>25-Sep-07</td>
<td>Regression II</td>
<td>Ch 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>27-Sep-07</td>
<td>Correlation</td>
<td>Ch 7</td>
<td>HW 5</td>
<td>HW4</td>
</tr>
<tr>
<td>11</td>
<td>02-Oct-07</td>
<td>Correlation II</td>
<td>Ch 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>04-Oct-07</td>
<td>Exam</td>
<td></td>
<td></td>
<td>HW5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Probability Theory &amp; Sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>09-Oct-07</td>
<td>Probability I</td>
<td>Ch 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>11-Oct-07</td>
<td>Probability II</td>
<td>Ch 8</td>
<td>HW 6</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>16-Oct-07</td>
<td>Bayes’ Rule &amp; Judgment Biases</td>
<td>TBD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>18-Oct-07</td>
<td>Expected Value and Decision Making</td>
<td>TBD</td>
<td>HW 7</td>
<td>HW6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inferential Statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>23-Oct-07</td>
<td>Hypothesis Testing</td>
<td>Ch 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>25-Oct-07</td>
<td>z-tests and t-tests</td>
<td>Ch 10</td>
<td>HW 8</td>
<td>HW 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paired t-tests, inferences about</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>30-Oct-07</td>
<td>correlations</td>
<td>Ch 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>01-Nov-07</td>
<td>Effect size &amp; Confidence Intervals</td>
<td>Ch 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>06-Nov-07</td>
<td>Exam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>08-Nov-07</td>
<td>Effect Size, Confidence Intervals</td>
<td></td>
<td>HW 9</td>
<td>HW 8</td>
</tr>
<tr>
<td>23</td>
<td>13-Nov-07</td>
<td>ANOVA</td>
<td>Ch 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>15-Nov-07</td>
<td>ANOVA</td>
<td>Ch 14</td>
<td>HW 10</td>
<td>HW 9</td>
</tr>
<tr>
<td>25</td>
<td>20-Nov-07</td>
<td>Two Factor ANOVA</td>
<td>Ch 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22-Nov-07</td>
<td>No Class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>27-Nov-07</td>
<td>Sign Test &amp; Non Parametric</td>
<td>Ch 16</td>
<td></td>
<td>HW10</td>
</tr>
<tr>
<td>27</td>
<td>29-Nov-07</td>
<td>Chi Square</td>
<td>Ch 16</td>
<td>HW 11</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>04-Dec-07</td>
<td>Discussion of research design</td>
<td>Ch 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>06-Dec-07</td>
<td>Review</td>
<td></td>
<td></td>
<td>HW 11</td>
</tr>
<tr>
<td></td>
<td>13-Dec-07</td>
<td>Exam Dec 13 7:45 am - 9:45 am</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Course Rules

1.) **Academic Honesty:** Article 2.3.3 of the Academic Freedom Report states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the (insert name of unit offering course) adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See Spartan Life: Student Handbook and Resource Guide and/or the MSU Web site: [www.msu.edu](http://www.msu.edu).

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the www.allmsu.com Web site to complete any course work in (insert course number here). Students who violate MSU academic integrity rules may receive a penalty grade, including a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also [http://www.msu.edu/unit/ombud/dishonestyFAQ.html](http://www.msu.edu/unit/ombud/dishonestyFAQ.html))

2.) **Accommodations for Students with Disabilities:** Students with disabilities should contact the Resource Center for Persons with Disabilities to establish reasonable accommodations. For an appointment with a disability specialist, call 353-9642 (voice), 355-1293 (TTY), or visit MyProfile.rcpd.msu.edu.

3.) **Drops and Adds:** The last day to add this course is the end of the first week of classes. The last day to drop this course with a 100 percent refund and no grade reported is (insert date). The last day to drop this course with no refund and no grade reported is (insert date). You should immediately make a copy of your amended schedule to verify you have added or dropped this course.

4.) **Commercialized Lecture Notes:** Commercialization of lecture notes and university-provided course materials is permitted in this course.

5.) **Class Attendance:** Students are expected to attend every class session. Examinations are based on materials covered in class and in the book. However, not every element covered in class is also covered in the book. Some elements covered in the book are covered in different form in class. Students whose names do not appear on the official class list for this course may not attend this class. Students who fail to attend the first four class sessions or class by the fifth day of the semester, whichever occurs first, may be dropped from the course.

6.) **Disruptive Behavior:** Article 2.3.5 of the Academic Freedom Report (AFR) for students at Michigan State University states: "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article 2.3.10 of the AFR states that "The student has a right to scholarly relationships with faculty based on mutual trust and civility." General Student Regulation 5.02 states: "No student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Faculty Judiciary process."
Participation in Psychological Research: Information for Students

As part of your psychology course, you are encouraged to participate in research projects conducted or supervised by the faculty of the department. The purpose of such participation is to give you some direct experience with real experiments and to give you a better idea of how the work of psychology is actually carried out. Participation is a course requirement for all sections of PSY 101.

Steps in Research Participation: Registering as a Participating Student.

The purpose of this handout is to go over some of the things you will need to know before participating in psychological research. The first step is registering. This, like nearly all your scheduling activities is handled through a site on the Internet/World Wide Web. Its address is: https://Psychology.msu.edu/experiments

And you can access it using standard Web browsers (such as Netscape or Microsoft Explorer) from any campus microcomputer lab facility. (If you don't know how to do this, ask the attendants at the facility to get you to the site.) This will bring you to the Participant login page. The first time you visit this page you must create your account. Click on the button that says Create an account - you will be directed to the page that says Enter the Account Creation ID. This semester your Account Creation ID is psych2006 – in the box used to enter the access code, type it just like this (in lower case), then click on Enter. You will now see the registration page - provide all the requested information. Once your account is created, you will be able to log directly into the system with your user ID and password.

****Among other things you will be asked to select the course and section number to which you wish to have your participation credits credited. It is CRITICAL that you select the correct course and section number. If you select an incorrect course or section, the credits that you earn through participation will NOT be relayed to the proper instructor and will not be counted in calculating your course grade ****

During some semesters, experimenters will want to get some background information on those participating in their experiments. They do this by having students answer Global Questionnaires. The more of these that you fill out, the more experiments you will be eligible to participate in. So, after registering, you should click on the Answer Global Questionnaires button and follow the instructions there to fill out these questionnaires.

Signing-up for research you can sign up for experiments 24-hours a day on the HPR Web site. To do so, get to the Student Menu (following the procedure described above). Then, to see a list of all experiments that are currently recruiting participants, click on the Sign up for an Experiment button and follow the indicated directions.

Canceling appointments. Experimenters have usually invested a great deal of time and money in preparing an experiment. This goes to waste if you fail to keep your appointment. It is Psychology Department policy to deduct 1 participant-credit from a student’s total whenever she/he fails to keep a research appointment. In effect, you would have to earn another participant-credit to make up for a missed study. Of course, sometimes due to illness or other unavoidable circumstances, you will not be able to keep a research appointment. In such cases, you can cancel your appointment by clicking on the button marked View/Modify My Schedule at the Student Menu on the Web site and following the instructions for canceling an appointment. Please note that you
cannot cancel an appointment on or after the day of your appointment. This means that any
cancellation must be done no later than 24 hours before your appointment. Failure to cancel or show
up for an appointment will result in a NO-SHOW being charged to you (and 1 credit being deducted
from your total). Exceptions will be made in the case of an emergency, contact the HPR secretary for
more information. (You need to know the name of the experiment and the date/time you signed
up for.)

If you lost the appointment time and place. Sometimes, people mislay the date-time-location
information for an experiment they've signed up for. If this happens to you and you ever need to check
on your appointments (where you're supposed to be and when), you can always click on the button
marked View/Modify my Schedule at the Web site to get this information. You can save yourself a
lot of trouble by writing down all the information and keeping it in a safe place.

Reporting for a research appointment. Be sure to give yourself enough time to get to the
experiment on time. If you are late, you could find the experiment in progress and the door locked.
On rare occasions, an experimenter may not make his/her appointment with you because of unusual
circumstances (e.g., a car breakdown, a personal emergency). If this happens contact Leslie Baldwin, the
HPR Secretary in Room 202, Psychology Building or email her at: lbaldwin@msu.edu to report it
(email is preferred).

Rights of Students Participating in Psychology Research

Participation must be voluntary/optional activities. First, it is Department, University, and Federal
policy that no student be compelled in any way to participate in research as participants. If you
participate in research, it must be done voluntarily. Therefore, even in classes where research
participation is required, students must be offered one or more alternative activities to meet their
requirement. If you want to avail yourself of such an alternative activity, you may get information from
your professor. Note that on rare occasions there are more people interested in participating in
experiments than there are openings in the experiments. If this occurs this semester, additional
alternative activities will be provided later in the semester.

SPECIAL NOTE: Students under 18 years of age may not participate in experiments without
parental consent.

• If you are under 18 and want to participate in a particular study, you must obtain whatever
written parental consent is required of the investigator, provide this to the investigator, and
then participate.
• If you turn 18 during (but not too late) in the semester, then you can participate in any
studies you like after your 18th birthday.
• If you will not turn 18 until late in the semester (e.g., after the 10th week of the semester),
contact the HPR Secretary, Leslie Baldwin (lbaldwin@msu.edu) for additional alternatives to
participation.

Participation should be educational. Second, participating in research should be a learning
experience for you. You have a right to obtain information about the experiments in which you serve
as a participant. You are entitled to have your questions about the experiment answered. Also, at least
five minutes of every experimental session must be devoted to teaching you something about the
experiment. You are entitled to receive a written summary of the experiment, including the name and
phone number of the person in charge of the experiment, whom you may contact if you have additional
questions.
The right to discontinue participation. Third, the Department of Psychology is highly concerned that no study be conducted that would in any way be harmful to you. Even so, it is possible that in rare cases you will feel uncomfortable about participating in a study for which you have volunteered. Just remember, you always have the right to leave any experiment. You don't have to explain or justify why you want to leave, and you can never be penalized for leaving.

The right to receive earned credits. Finally, if you do what you're supposed to do (sign up properly, show up at the right place at the right time, etc.), you have a right to receive the credit you've earned. So, for example, even if an experimenter has an equipment breakdown, you're still entitled to receive credit for the time you've spent in the study. However, do not sign up for the same study twice.

Reporting problems. If you ever encounter some problem or feel that your rights have been violated, we want to know about it. Problems you have will be handled by Leslie Baldwin, the HPR Secretary, email address lbaldwin@msu.edu or come to Room 202, Psychology Building. They will be investigated and appropriate action will be taken. If the issue concerns an experiment you need to know the name of the experiment and the date/time you signed up for.

Conclusions. We want to emphasize that negative experiences are very rare; most students who serve as participants in research at Michigan State find their participation interesting and enjoyable. When you serve as a participant in psychological research you're benefiting personally by learning more about what the science of psychology is really about, but you're also benefiting many others. Others like the psychologists who are working to get a better understanding of interesting and important behavioral questions. Others like people who will benefit when that knowledge is ultimately applied to everyday human problems like loneliness, depression, divorce, and self development. And others like future generations of students. Who knows? Perhaps the research you participate in this semester will be featured in future psychology textbooks, just as some of the experiments you'll study this semester had their data supplied by previous generations of MSU students. We hope and expect that you'll put as much in and get as much out of research participation as they did.