

# STATISTICS 2000

## Fall 2009

**Instructor:** Diane Conway  
**Office:** BA 354  
**E-mail:** dconway@bgsu.edu  
**Phone:** 372-8961  
**Office Hours:** Monday 2:30-4:30      Tuesday 1:30-2:30      Thursday 1:00-2:00      Any other day by appointment or by chance

**Blackboard:** To access, go to [www.bgsu.edu](http://www.bgsu.edu) and click on MyBGSU.

**Free Stats Help:** **Math & Stats Tutoring Center**  
**Office:** 208 Moseley Hall, **Phone:** (419) 372-8009

**Text:** *Workshop Statistics: Discovery with Data* (3rd edition), Rossman and Chance

**Computer Software:** We will be using the program MINITAB 15 to analyze data. MINTAB 15 is available in all BA computer labs (password needed) and most public labs on campus. I will give instructions in class on how to use Minitab as needed for HW. You may also download a free 30-day trial version on to your own computer at [www.minitab.com](http://www.minitab.com), or purchase a 6 month subscription for \$29.99.

**Overview:** Statistics might be defined as the science of numerical reasoning from data. Its purpose is to aid people in **making decisions** based on analyzing data. Most people encounter statistical reasoning in everyday life. It is therefore exceedingly appropriate and important for all liberally educated citizens to study the fundamental principles and methods of statistics. To accomplish this, we will spend a fun-filled three hours per week *actively* learning the basics of statistics!

<b>Course Work:</b>	Homefun	100 points	(13.3%)
	In Class Quizzes	100 points	(13.3%)
	Project	100 points	(13.3%)
	Attendance	100 points	(13.3%)
	Two Exams (100 points each)	200 points	(13.3% each test)
	Final Exam (comprehensive)	<u>150 points</u>	(20%)
	<b>TOTAL</b>	<b>750 points</b>	

**Grading Scale:** The final grade will be based on the above criteria. The grading scale is:

	A	B	C	D	F
<b>Percent:</b>	90-100	80-89	70-79	60-69	0-59
<b>Points:</b>	675-750	600-674	525-599	450-524	0-449

**\*\* Note:** This class does not count toward graduation credit for students receiving a BSBA\*\*

**DISABILITY POLICY:** In accordance with the University policy, if the student has a documented disability and requires accommodations to obtain equal access in this course, he or she should contact the instructor at the *beginning* of the semester and make this need known. Students with disabilities must verify their eligibility through the Office of Disability Services for Students, 413 South Hall, 419-372-8495. (<http://www.bgsu.edu/offices/sa/disability/index.html>)

**1. Assignments:** You are encouraged to work together on the homefun assignments, *but* your answers must be written in *your own words*. If two homefuns are identical then the score will be divided between the two papers. Some assignments require the use of the computer, so please feel free to ask me for help or refer to the Minitab directions on Blackboard. **Homefun assignments and due dates will be posted on blackboard – check it often!** Do your best to turn in all homefuns (13.3% of final grade).

◆ **LATE** homefun assignments will **NOT** be accepted. If you have to miss a class, you may turn your homefun in early or send it with a friend.

**2. Quizzes:** An in-class quiz will be given at the end of each topic. The lowest quiz score will be dropped from the calculation of your final quiz score. **No make-up quizzes will be given.**

**Note:** The final homefun and quiz scores will be calculated by dividing the total number of points earned by the total possible points and then multiplying this percent by 100 (HF) or 100 (quizzes).

*Ex: Earned hf points: 400    Total possible hf points: 500    Final hf score =  $(400/500)*100 = 80$  hf pts*

**3.** A group **project** will be given after the first exam. This will involve more extensive work than regular assignments.

**4.** Dates for the **exams** will be announced at least one week in advance. Make-up exams will be given only if I am notified in advance and an acceptable written excuse/official verification is presented before rescheduling the test. Cheating is **NOT** tolerated and may result in failure of the course. The **final exam** is cumulative. You should also be aware that most of the course is cumulative in the sense that material presented later in the course builds on earlier material.

◆ **If a class/exam is cancelled, a representative from the ASOR dept. will notify you in person.**

**5.** Class **attendance** is graded. Attendance at lectures and participation in cooperative learning activities is required, and is weighted as 13.3% of the final grade. Attendance will be recorded by use of a “sign in sheet”. It is your responsibility to sign this sheet each class. Arriving late or leaving prior to the end of class may result in your having an absence recorded for that class. **You are allowed 2 absences without penalty;** additional absences will result in a 5 point per absence deduction from your final point total at the end of the semester. Absences for which a written excuse is provided will be recorded but not figured in the attendance grade.

**6. Content:** We will cover all (or almost all) of the topics in the text, which are arranged into seven units:

<b>Unit I:</b> Collection Data and Drawing Conclusions	<b>Unit V:</b> Inference from Data: Comparisons
<b>Unit II:</b> Summarizing Data	<b>Unit VI:</b> Inferences with Categorical Data
<b>Unit III:</b> Randomness in Data	<b>Unit VII:</b> Relationships in Data
<b>Unit IV:</b> Inferences from Data: Principles	

**Suggestions:** I offer you the following "Top Ten" suggestions as you approach this course:

- |   |   |
|---|---|
| 1. <b>Come to class</b>                             | 6. Don't get behind and don't get overconfident |
| 2. <b>Ask questions!</b>                            | 7. Read carefully                               |
| 3. <b>Start the assignments early</b>               | 8. Write complete answers in your workbook      |
| 4. <b>Work together and use office hours</b>        | 9. Have fun!                                    |
| 5. <b>Review the material throughout the course</b> | 10. Think!                                      |

A common theme emerges from this list: **You are responsible for your own learning.** As your instructor, I view my role as providing you with contexts and opportunities which facilitate the learning process. Please call on me to help you with this learning in whatever ways I can.

## Course Principles

The following principles guide my teaching of this course and may help you to understand what I think the course is about:

1. **Statistics is not number-crunching.** Contrary to its popular perception as a black box collection of mysterious magic tricks, statistics involves much more than numerical computations. The emphasis of the course will be on understanding statistical concepts and on interpreting and communicating the results of statistical analyses. In other words, you will be expected to learn to construct and analyze numerical arguments. In contrast to most mathematics courses, we will be using phrases such as "there is strong evidence that ..." and "the data suggest that ..." rather than "the exact answer is ..." and "it is therefore proven that ...". To alleviate the computational burden, we will often use Minitab to perform calculations and produce visual displays.
2. **Statistics involves the analysis of genuine data.** Supporting my contention that statistics is applicable in everyday life and in most fields of academic endeavor, you will analyze genuine data from a wide variety of applications throughout the course. Many of these data sets involve information that you will collect about yourselves and your peers; others will come from sources such as almanacs, journals, magazines, newspapers, and books. The contexts for these data will span a wide variety of subject matter; most should be of interest to a general audience.
3. **Understanding results from investigation and discovery.** As opposed to passively taking notes while I lecture, you will spend the majority of class time actively engaged with the material. You will work through activities carefully designed to lead you to discover fundamental statistical ideas for yourself. You will be encouraged to work collaboratively with a partner on most of these activities. My role during class time will be to make my way about the classroom, answering your questions and guiding you toward a better understanding of the material. I will lead class discussions and present explanations where appropriate.

## Course Goals

My primary goals for this course are to help you to develop:

- the ability to **apply and interpret** the results of a variety of **statistical techniques**, including both exploratory and inferential methods;
- an **understanding** of many of the **fundamental ideas of statistics**, such as variability, distribution, association, causation, sampling, experimentation, confidence, and significance;
- a **critical perspective** with which to **analyze and assess statistical arguments** such as one encounters in the popular press as well as in scholarly publications.

## Prerequisites

There are no formal prerequisites for this course. Certainly, no prior knowledge of statistics is expected. The mathematical level of the course is that of high school algebra. Although we will use computers, you do not have to be familiar with them. I will provide you with instructions concerning the use of the statistical analysis package Minitab. What you **do** need to bring to the course is an open mind for tackling quantitative questions in a conceptual manner and a willingness to participate actively in class.