

Calculator You will need a calculator for this course and it should be brought to class. On quizzes and exams, you may not share calculators so it is important that every student has access to their own calculator. My personal recommendation is the Texas Instruments TI-36X Solar Scientific Calculator, as it has functions for simple probabilities and basic one & two variable statistics. And it operates on solar power! It is available in the college bookstore. It is strongly recommended that you have a calculator capable of simple statistical calculations. This tool can potentially save you substantial amounts of time and prove invaluable during exams and quizzes that have a time limit. Note that calculators capable of more complex statistics (e.g. regression or ANOVA) may be used in this class but should be used with caution as partial credit can only be given if *all* work is shown.

Cyber alert! Computer use will be necessary for this class including some assignments and communication. We will rely on Brockport's ANGEL website as a communication tool and to contain course information including announcements, assignment information, syllabus updates, etc. You should check this frequently and let me know if you are experiencing problems.

Accessing ANGEL:

1. Go to <http://angel.brockport.edu>
2. Log on using the same username & password as your Brockport email.
3. You should now be on "My Page" from which you have access to all of your courses, etc. using Angel including "ENV 437/614 BioStatistics (F08)" (under "Courses").
4. Explore the course page. If you have problems or questions, please contact the Help Desk at 395-5151 or helpdesk@brockport.edu, or contact Mark.

Course & Instructor Feedback

I assume that you, the students, have a sincere interest in this course and getting the most out of it. I will do my best to provide effective teaching and request feedback from the students to know if I am successful and ask for suggestions for improvement. Please feel free to contact me with your concerns or suggestions through conversation, email, or anonymous notes in mailbox (in Lennon's first floor lobby).

Course Expectations and Policies

ATTENDANCE – College Policy: The student is responsible for all assigned course work and can not be absolved of this responsibility. When enrolled in a particular course, the student is obligated to do all of the work assigned. Punctual and regular attendance is vital to the discharge of this obligation. Absences, excused or not, do not alter this responsibility. Absences will be excused for (a) documented illness, (b) official representation of the college, (c) death of a close relative, (d) religious holiday, and (e) other circumstances beyond control of the student. Substantiation of excused absences is the responsibility of the student. Students whose **unexcused** absences exceed 3 will be subject to a final grade reduction of a whole letter grade for each additional absence. Note that class starts at 8am, tardiness will count as a ½ absence.

MISSED EXAMS – Make-up exams will be given only if your reason is valid and documented (e.g. illness or family member death). The format of make-up exams will be at the instructor's discretion. If possible, please let me know prior to the exam so that alternative arrangements can be made.

ACADEMIC INTEGRITY – We will adhere to the college's regulations regarding the Academic Honesty Code as published in the 'Your Right to Know and Academic Policies Handbook.' Additionally, *all assignments and tests must be original and independent work*, unless explicit permission is given otherwise. I am intolerant of academic dishonesty and will file violations formally. If I suspect that you have committed an act of academic dishonesty, I reserve the right to do one or more of the following: 1) impose a point penalty on the assignment, 2) give you a grade of "0" for the assignment, 3) give you a grade of "E" in the course, each of which may be subject to further penalties following college policies. If there is any question regarding academic honesty, ask!

CLASS DISRUPTIONS – Ringing cellular telephones and electronic devices not used for class purposes are considered disruptive. After an initial warning, students who do not comply will be asked to leave for the remainder of the class without the possibility to makeup missed work. Accessing a wireless communication device or using earphones during examinations also may be grounds for charges of academic dishonesty. Further information is available in “Your Right To Know and Academic Policies Handbook.”

DISABLED STUDENTS – Students with documented disabilities may be entitled to specific accommodations. SUNY Brockport’s Office for Students with Disabilities makes this determination. Please contact the office for Students with Disabilities at 395-5409 or osdoffice@brockport.edu to inquire about obtaining an official letter to the course instructor detailing approved accommodations and should make an appointment to speak with me as soon as possible. The student is responsible for providing the course instructor with an official letter. Faculty work as a team with the Office of Student Disabilities to meet the needs of students with disabilities.

Assignment & Grading Information

HOMEWORK ASSIGNMENTS – At the end of most lectures, I will assign a number of homework problems. I will periodically collect these assignments (with or without warning) on Tuesday for the previous week (problems from *the entire previous week*). Assignments will be collected at the beginning of the class. Assignments received after that will be deducted a 25% (of possible points) penalty for each 24 hour period late. I will accept late assignments until I have completed grading that particular assignment. You may work with your peers on the homework assignments but everyone must hand in individual assignments. Note: Even when homework is not assigned, it is in your best interest to practice a number of the problems in the book for practice (note that the answers to specified questions are in Appendix B).

UNANNOUNCED QUIZZES – At the instructor’s discretion, short quizzes may be given during class. There will be no make-up for missed quizzes. You will be able to use your homework for help with these quizzes.

QUIZ & EXAMS – There will be one 50 point quiz, two 100 point exams during the semester and a final exam worth 150 points. Each exam will be partially cumulative, emphasizing the latest unit. See course schedule for exam dates. Your final exam score, if higher (%) than one of the midterms, will replace that grade. Please note the objectives of the course and realize that memorization of facts is necessary to some extent but never sufficient by itself. I may not be able to give a simple answer to the question, “what do I need to know for the exam?” An inquisitive mind and having the ability to work with pieces of data according to their interrelationships and conceptual importance will certainly be to your advantage. Additionally, as I find it tedious and unnecessary to memorize formulas which can be easily referenced, you may bring your own “cheat sheet” to the exams, consisting of a single sheet of 8.5x11” paper, front & back. There may also be take-home portions to any of the exams. Statistical tables will be provided.

GRADING ERRORS – If a student feels an error has been made in grading a homework, quiz, or exam, the paper may be submitted to me for regrading within one week of the date that it was returned to the class. Papers must be accompanied by a written request detailing what grading errors have been made. The question(s) will be regraded thus the new grade could potentially be higher than, lower than, or the same as the original grade depending on any errors found. A written request is *not* needed for errors of point tallying.

DETERMINING FINAL GRADE:

Exams (and scheduled quiz) (400 points): approximately 66%

Assignments and pop quizzes: approximately 34%

Grade Scale:

90%-100%	A	Final averages near the upper or lower portions of these ranges ($\pm 3\%$) will receive plus or minus grades, respectively (e.g., an 87% course average will earn a grade of B+, 82% will earn a B-).
80%-89%	B	
70%-79%	C	
60%-69%	D	
<60%	E	

Hints for Successfully Completing this Course:

- ✓ Complete all of the assigned homework promptly. *Do not* wait until the few hours prior to class to start your homework. The material on exams will be a fair representation of the assigned homework and material covered in class.
- ✓ Do not get behind with the hopes of catching up later in the semester. The material in this course entails developing a cumulative set of knowledge; if you fail to grasp the material early in the semester, you will struggle in grasping material later.
- ✓ If you are confused in class, please ask questions.
- ✓ If you are struggling with the material, visit me for help.
- ✓ A good way to study for a statistics exam is to go back and re-do all of the assigned homework or additional related problems. I also encourage you to work with your peers to select problems for each other so that you gain practice selecting the correct statistical analysis. If you do not understand a particular topic, seek help before the exam.

GRADUATE STUDENT EXPECTATIONS & GRADING (ENV 614)

Ideally, this course will expand upon the basic statistics course and focus on basic concepts in designing experiments including treatment and design structures, randomization, replication, and blocking. Topics also include more complex statistical designs including split-plot, ANCOVA, multiple regression, and repeated measures analysis. Special consideration is given to appropriate use and interpretation of statistical analysis. In short, graduate students are expected to develop and demonstrate a broader and deeper understanding of statistics than undergraduates. In particular, this includes:

- More rigorous evaluation of performance on examinations and assignments including the possibility of more strenuous examination (i.e. more challenging questions).
- Higher expectations of class participation and leadership in the classroom.
- *As an option*, if graduate students have any previous exposure to statistics, they may choose and are encouraged to forego homework assignments with which they are already familiar (and with my consent) and instead perform an alternative assignment. This will likely include a presentation of a published study which used that particular statistical approach and an evaluation of the study's experimental and statistical designs, assumptions, and appropriateness. If this option is of interest, please speak to me regarding this. Group work is acceptable for the independent projects.
- *There will also be an additional assignment to describe your research including experimental design and statistical approach.*
- *As a word of caution, please be aware that a D in a graduate class is a failing grade.*

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + e$$

Course Schedule

*Please note: this schedule is subject to change as necessary
Readings should be completed prior to class.*

DATE	TOPIC	TEXT
8/26	Introduction, terminology, & statistical philosophy	1
	Descriptive statistics & probabilities	
8/28	Types of studies, Randomization	2 (note Table 2.2 and Caution) Zar: 1:1-15
9/2	Graphical representation, central tendency	3, 4-4.2.6 Zar: 1:6-15
9/4	Measures of variability	4.3-
9/9	<i>Minitab</i> introduction (computer lab), review	
9/11	QUIZ – Probabilities I (binomial, distributions, discrete var.)	5
9/16	Probabilities: continuous variables (Normal dist)	6-6.2
9/18	Sampling distributions	6.3-6.6, 7
9/23	Confidence intervals, z vs. t distribution	7
9/25	Review, Hypothesis testing I (1 sample)	8
9/30	EXAM	
	Statistical inference and hypothesis testing	
10/2	Hypothesis testing II	8
10/7	Hypothesis testing III, significance (p-values)	8
10/9	Inferences about 2 population means (independent)	9.1, 9.2, 9.4, 9.5
	<i>Fall break</i>	
10/16	Inferences about 2 population means (paired)	
10/21	Nonparametric tests for 2 samples	9.3, 9.6.2
10/23	Review, power analysis	9.7, 9.8
10/28	Discrete data and the binomial distribution	
10/30	Contingency tables (χ^2)	
11/4	Review (selecting tests, chosen HW problems)	
11/6	EXAM	
	Regression & ANOVA	
11/11	Introduction to linear regression	12
11/13	Regression	
11/18	Correlation (multiple regression notes on Angel)	13
11/20	Analysis of variance: one-way	10
11/25	Analysis of variance: multiple comparisons, KW	10
	<i>Thanksgiving</i>	
12/2	Analysis of variance: complexity & versatility	11
12/4	Review, multiple regression	
12/11 (Thurs)	FINAL EXAM, 8 – 10 am (double check final exam schedule)	