

Syllabus for Math 123 (Introduction to Statistics)

Fall 2016 Semester at Lycoming College

Course Content

Topics include both descriptive and inferential statistics: graphical displays involving one or more qualitative and/or quantitative variables; numerical summaries to measure characteristics such as the center of a distribution, variation in a distribution, and symmetry or skewness in a distribution; random sampling; the normal distribution; the Central Limit Theorem; one and two sample hypothesis tests and confidence intervals involving means and proportions; one-way analysis of variance; the chi-square goodness-of-fit test; the chi-square test concerning independence in a two-way contingency table; Pearson correlation and testing for significance with simple linear regression. The major goal of this course is to provide the student with an understanding how descriptive and inferential statistics are applied and interpreted in a variety of fields, such as business, psychology, sociology, science, etc. This course is required by several majors and counts toward the mathematics distribution requirement. Heavy use is made of the TI-84 calculator and the SPSS statistical software.

Course Goals

Since this course counts toward the mathematics distribution requirement, goals for this course include fostering critical thinking skills and preparation for further work in the scientific traditions that require the collection and statistical analysis of data. Since this course can count for the mathematics major, goals for this course also include developing the ability to assess the probability of a simple random event, to interpret the result of a simple statistical study, and to solve quantitative problems with the use of technology.

Who Should be Taking This Course

This course is designed for students required to take a statistics course or who have a specific interest in statistics; students who are only looking for a course to satisfy the mathematics distribution requirement may also take this course, but such students should consider the other mathematics courses available if there is no specific interest in statistics. Math 100 (Basic Algebra) is a prerequisite for this course; students who do not satisfy this prerequisite will have their names removed from the roster.

Lycoming College provides academic support for students who officially disclose diagnosed learning, physical, and psychological disabilities. If you have a diagnosed disability and would like to seek accommodations, please contact Jilliane Bolt-Michewicz, Assistant Dean of Academic Services/Director of the Academic Resource Center. Dean Bolt-Michewicz will help you arrange for appropriate academic accommodations. She can be reached by calling (570) 321-

4050, emailing michewicz@lycoming.edu, or visiting her office (Academic Resource Center, 3rd Floor of Snowden Library).

Instructor(s)

<i>Name</i>	<i>Office Location</i>	<i>Office Hours *</i>	<i>Office Phone</i>
Dr. Gene Sprechini	Academic Center D311	Mon 10:30 AM to 11:00 AM Tue 9:45 AM to 10:15 AM Wed 10:30 AM to 11:00 AM Fri 10:30 AM to 11:00 AM	(570) 321-4286
Ms. Diane Abercrombie	Academic Center D319	Wed 1:30 PM to 3:00 PM and by appointment	(570) 321-4286

*You may of course make an appointment with your instructor at other times

Tutoring

Free Tutoring is available in the Math Center, on the third floor of the Snowden Library, for students who want to check homework answers for errors, get help doing homework, and ask questions about class work. While tutors may need to give some detailed explanations to help students with questions, it is not the tutors' job to teach material from scratch. (Students who miss class should get a copy of class notes from the instructor, from a tutor, or from a classmate. It is then the student's responsibility to review the material, update notes, and direct any questions to a tutor, the instructor, or a classmate.)

Grading

<i>Item</i>	<i>Point Values and Policies</i>
Homework	Points from homework assignments leading up to each exam are added, up to a maximum total of 50. Completing all homework is strongly encouraged, even though no more than 50 points can be earned leading up to each exam. <u>No points are ever given for late homework for any reason. Students who miss submitting an assignment on time can still earn the maximum 50 points leading up to the exam, if no more than 2 or 3 other homework assignments are missed.</u> Due dates are available from the course schedule . A student who misses submitting more than 15 homework assignments automatically fails the course.
Semester Exams	Up to 150 points can be earned on each semester exam given in class. For each missed exam, a grade of zero is recorded, unless (1) the instructor is presented with documented evidence of a medical reason for not completing the exam at the scheduled time, and (2) arrangements to make up the exam are made within 24 hours of the originally scheduled exam time. Exam dates are available from the course schedule .

Project	The project is worth 200 points and involves the formulation of a research question and the analysis of relevant data.															
Final Exam	The final exam is worth 400 points, with 50 points coming from the homework leading up to the final exam and 350 points coming from the final exam administered during final exam week.															
Attendance	The final course grade percentage is reduced by 4% for each unexcused absence after the third unexcused absence; an absence is considered to be excused when the instructor accepts an email from the student explaining the reason for the absence. It is the student's responsibility to find out what was missed in class and keep up with the coursework. Students can get a copy of class notes from the instructor, from a tutor, or from a classmate. A student with more than 10 unexcused absences automatically fails the course.															
There is a total of 1400 points that can be earned. The final course grade percentage is the percentage of points earned out of the total number of points that can be earned. The final course letter grade is determined from the following:																
<table><tr><td></td><td>A = above 93.33%</td><td>A- = 90% to 93.33%</td></tr><tr><td>B+ = 86.67% to 90%</td><td>B = 83.33% to 86.67%</td><td>B- = 80% to 83.33%</td></tr><tr><td>C+ = 76.67% to 80%</td><td>C = 73.33% to 76.67%</td><td>C- = 70% to 73.33%</td></tr><tr><td>D+ = 66.67% to 70%</td><td>D = 63.33% to 66.67%</td><td>D- = 60% to 63.33%</td></tr><tr><td></td><td>F = below 60%</td><td></td></tr></table>			A = above 93.33%	A- = 90% to 93.33%	B+ = 86.67% to 90%	B = 83.33% to 86.67%	B- = 80% to 83.33%	C+ = 76.67% to 80%	C = 73.33% to 76.67%	C- = 70% to 73.33%	D+ = 66.67% to 70%	D = 63.33% to 66.67%	D- = 60% to 63.33%		F = below 60%	
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	F = below 60%															

Required Materials

Each student must have

- one or two three-ring binders with a section containing a copy of this syllabus together with the course schedule and tutor schedule, a section containing the class exercises, a section containing the textbook (optional) and the appendices (required), a section containing the exercise sets (required) and answers to odd-numbered exercises (optional), and a section containing SPSS labs (optional) (Since students will need to use these binders every day in class and will be allowed to use these three-ring binders for exams, they should be kept up-to-date and complete; also, many of the exercises assigned both in and out of class will refer back to work done in one or more previous exercises.)
- any TI-84 or TI-83 calculator (regular, plus, or Silver Edition) – students will need to use the calculator almost every day in class, for completing many of the required assignments, and on exams

- a computer account on the college network in order to access the SPSS statistical package

Course Links

Course Schedule

Free Tutoring

Textbook with Appendices

Text Exercise Sets and Answers to Odd Numbered Exercises

SPSS Lab Exercises and Using SPSS for Windows

Description of Required Project

Selecting the Proper Statistical Procedures

Class Exercises

Note: In the event that links do not work, because the server is down, hardcopies of the textbook units and appendices, the exercises sets, the answers to odd numbered exercises, and the lab exercises are all on permanent reserve in the college library under “Sprechini – Math 123”

Tips for Success in This Course

- (1) Keep up with the homework - understanding every homework assignment as completely as you can is the key to grasping the course material. Even though there will be some homework assignments that you may not be required to submit, do them anyway, since they will help you master the material. Check all your homework answers with a tutor before submitting an assignment.
- (2) In the assigned reading material, you will find self-test problems with answers provided at the end of the section.
- (3) As part of your preparation for exams, do all suggested odd-numbered exercises that were not assigned for homework, and start working on these about a week before the exam date - don't wait for the night before the exam.
- (4) Get your questions answered quickly by a tutor, a course instructor, or a classmate.
- (5) Keep your binder up-to-date and well-organized, since you are allowed to use the binder for exams.

General Standards and Policies

All work submitted must be of professional quality. All paper must be neat, without ragged edges, rips, tears, smudges, stains, etc. All answers must be clear, complete, and concise; handwriting must be legible. If the instructor can't read it, it's wrong. Assignments may be down-graded if these standards are not met.

It can be very helpful for some students to work together on daily assignments and to study together; this is encouraged when it does not result in one student simply copying another's work with no understanding. Acts of academic dishonesty will result in a grade of F for the course, and a letter to the Dean describing the circumstances. If you are having problems in the course, talk to the instructor; don't involve yourself in academic dishonesty. With each assignment submitted, students are expected to write a short note at the end of the assignment indicating from whom help was received and to whom help was given (but this does not affect the grade for the assignment). The following is from the FACULTY HANDBOOK in the section titled *Student Course Load*:

"It is expected that students will spend, in preparation for courses, two hours of study time outside the classroom for every hour of credit in the classroom."

This means that you should be prepared to spend, on average, eight hours per week outside of class working on a four-credit course; however, this will vary from student to student and from course to course. Your time will be spent reading the text, reviewing class notes, and completing homework exercises.

If you encounter a problem while working on assignments, do not spend more than 20 or 30 minutes trying to solve the problem; if you cannot solve a problem in 20 or 30 minutes, even with the help of a tutor or lab monitor, work on something else and show the problem to one of the instructors of the course as soon as possible.