	Course Number: MATH 251C-ES eStart Statistics
	100% Online, Credits – 4.0
	Prerequisite(s): MATH 120(X)C or MATH 124(X)C
	Term: Fall 2020 (8/31/2020 – 12/18/2020)
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This syllabus is to be used as a guide; it contains information about the course, how it will be taught, what will be required of the student and assessment methods that will be used. All information is subject to change at any time.	

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Course Description

Topics will include: data collection and summarization; basic measurements of central tendency and variability; frequency distributions, probability, binomial, Poisson, normal, Student t, and Chi-Square distributions; sampling distributions and the Central Limit Theorem; estimation of parameters; hypothesis testing; and linear regression and correlation. All course work is completed online on the Pearson *MyLab Statistics* web site. (Prerequisites: Passing grade in MATH 120(X)C or MATH 124(X)C or by placement testing.)

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Learner Outcomes

Upon completion of this course, the student will be able to:

I. Introduction to Statistics

- Use statistical thinking.
- Understand and identify types of data.
- Use critical thinking to interpret statistical reports.
- Understand and identify various methods for collecting data.
- Analyze sample data and understand context, source and sampling method.
- Describe the difference between statistical significance and practical significance.
- Determine the basic statistical calculations that are appropriate for a data set.
- Describe sound sampling methods and good design experiments.

II. Summarizing and Graphing Data

- Identify and create frequency distributions.
- Identify and create histograms, scatter plots, and other types of statistical graphs.
- Use critical thinking when evaluating scaled graphs.
- Produce and interpret a scatterplot.

III. Statistics for Describing, Exploring, and Comparing Data

- Identify and compute measures of center.
- Determine the effect of outliers on measures of center.
- Identify and compute measures of variation.
- Identify and compute measures of relative standing.
- Create and interpret boxplots.

IV. Probability

- Understand basic concepts of probability.
- Understand and use the addition rule to compute probability.
- Understand and use the multiplication rule to compute probability.
- Understand and use the complement to compute probability.

V. Discrete Probability Distributions

- Identify a random variable.
- Generate and interpret a binomial probability distribution.
- Compute the mean, variance, and standard deviation for a binomial distribution.
- Generate, interpret, and find probability values for a Poisson probability distribution.

VI. Normal Probability Distributions

- Identify and interpret the standard normal distribution.
- Use a normal distribution to compute probability.
- Understand sampling distributions and estimators.
- Understand the Central Limit Theorem.
- Be able to assess normality in a population based on a sample.

VII. Estimates and Sample Sizes

- Estimate a population proportion.
- Estimate a population mean (standard deviation known).
- Estimate a population mean (standard deviation unknown).
- Understand student t distributions.
- Estimate a population variance or standard deviation (chi-square distribution).

VIII. Hypothesis Testing

- Understand the basic concepts of hypothesis testing.
- Test a claim about a proportion.
- Test a claim about a mean (standard deviation known).
- Test a claim about a mean (standard deviation unknown).
- Test a claim about variation.

IX. Correlation and Regression

- Understand and interpret correlation.
- Understand and interpret regression.

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Course Materials and Resources

- **REQUIRED: Pearson MyLab Statistics for Elementary Statistics, 13/e ISBN: 9780135900826**

An access code is required to enroll at the Pearson *MyLab Statistics* web site. All homework assignments and chapter exams will be completed through *MyLab Statistics*. The web site includes the textbook as an eBook.

Students who prefer a printed textbook should purchase the loose-leaf textbook bundled with the access code (**ISBN: 9780134763705**). See **Enrolling in Pearson | MyLab | Statistics** on page 6 for more information.

- **OPTIONAL: TI 84 (+) graphing calculator**

MyLab Statistics includes StatCrunch, a statistical analysis tool that can be used to solve problems in the homework and on tests; therefore, purchase of the TI-84 calculator is optional.

- **OPTIONAL (recommended): Programs for the TI-84 calculator**

Programs that will simplify solving problems in Chapters 7, 8, and 10 are available in the *TI-84 Calculator Programs* module in Canvas. Instructions for loading the programs onto your calculator are also provided in this module.

Textbooks, materials, and software are available online at [eFollet](#) unless specified by your instructor.

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Canvas Orientation and Technical Support

If you are new to Canvas watch the short Canvas Overview tutorial video available in the *Getting Started* module.

You also have access to [24/7 technical support services](#). Click this link to access tutorials, live chat, and phone Frequently asked questions regarding online learning, Student Information System (SIS) and student e-mail.

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Faculty Communication Policy

To communicate with the student, the instructor will use the CCSNH Student E-mail system. The student is expected to maintain an active registration in *MyLab Statistics* using a valid CCSNH Student E-mail address. The student is expected to regularly check the CCSNH Student E-mail account and the e-mail account in the Pearson user account profile for messages from the instructor.

E-mail Response Time

You can expect a response within 12 hours of sending an e-mail.

Grade Posting

Grades on homework assignments and tests are continually kept up-to-date automatically by Pearson *MyLab Statistics* and will be regularly imported into Canvas Grades. Any discrepancy should be reported to the instructor as soon as possible.

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Assessment of Learning (Course Grade Calculation)

Category	% of Final Course Grade
Weekly Preparation Questions	10%
<i>MyLab Statistics</i> Homework	18%
<i>MyLab Statistics</i> Tests	72%
Total	100%

Grading Schema	
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	< 60

Assignment and Assessment Descriptions

- **Weekly Preparation Questions**

These assignments consist of reading the assigned material (textbook chapter, PowerPoint lecture, and/or video). The student is then expected to submit a typed response on Canvas by answering questions about the readings. The answers do not need to be lengthy, but they need to be long enough to show that the student has grasped the concept presented in the question. Since this class is in an online format, these preparation assignments are of utmost importance to student success.

- **Homework**

All homework assignments (one per textbook section) are to be completed on or before the due date specified in *MyLab Statistics*.

No limits are placed on the number of attempts or time to complete problems. Students are allowed to continue working on past-due homework assignments, but late problems receive a penalty of 50%. Homework assignments marked Past Due will receive a score of 0 to more accurately reflect academic standing. (Otherwise, unworked assignments are not included in the overall score.)

The student will have access to a wide variety of learning aids while completing homework assignments through the **Question Help** menu, including videos, animations, calculator help, worked-out examples, Help Me Solve This, and Ask My Instructor. (Not all aids are available with every problem.)

In addition, the **Technology Tips** section of each weekly Canvas module contains videos and documents provided by the instructor to demonstrate use of StatCrunch and the TI-84 graphing calculator in solving homework problems.

- **Tests**

The student's mastery of the course material is assessed by four tests, to be submitted by midnight on the due date indicated in *MyLab Statistics*. (See also **Course Schedule** for exact dates.) The tests are available for a two-day period. Tests have a 3-hour time limit. The problems on the tests are taken from the homework assignments; therefore, the best way to prepare for tests is to complete the homework assignments each week.

If you have a known conflict with a test due date, you are expected to contact the instructor prior to the test to arrange for a modified due date.

If you miss a test due date (the test is marked Past Due in *MyLab Statistics*), you are expected to make up the exam within two calendar days of the original due date or by the date assigned by the instructor. A late penalty of 5% on the final score is imposed on a test submitted after the original due date.

You can suspend activity on a test by clicking the X in the upper right corner of the test window. The timer will stop and restart when you reopen the test. Do not click the Submit button until you are finished with the test.

To potentially earn additional partial credit for incorrect answers, you are invited (not required) to send photos of your work on test problems to vlavoice@ccsnh.edu—no later than midnight on the due date of the test. Your work must be legible, organized, and clearly identify the problem number being solved. These photos must show how you obtained the submitted answer. In other words, this is not intended as an opportunity to correct errors on the test. Be sure to include your name and the test number at the top of each page.

NOTE: The first week (which starts Monday, August 31) and the last week (which ends on Friday, December 18) are short weeks, so please plan accordingly.

No additional assignments other than discussion questions, homework, and tests will be offered for credit.

Students may use the Study Plan, Quiz Me feature, and Sample Tests in *MyLab Statistics* for additional practice; these exercises are not included in the student's Overall Score but do appear in the instructor's online gradebook (as evidence of the student's extra effort).

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Course Schedule

This schedule is subject to change at the discretion of the instructor.

Assignments are due by midnight on Saturday each week (except for Week 16, which ends on **Friday, December 18**).

In the event of a discrepancy, the due date for an assignment or test specified in *MyLab Statistics* is the official due date unless otherwise notified.

WK	Date	Sections	Topics	Tests
1	8/31 – 9/5	1-1, 1-2, 1-3	Statistical and Critical Thinking; Types of Data; Collecting Sample Data	
2	9/6 – 9/12	2-1, 2-2	Frequency Distributions; Histograms	
3	9/13 – 9/19	2-3, 3-1	Graphs That Enlighten and Deceive; Measures of Center	
4	9/20 – 9/26	3-2, 3-3	Measures of Variation; Measures of Relative Standing and Boxplots;	Test 1 (Ch. 1 – 3) 9/25 – 9/26
5	9/27 – 10/3	4-1, 4-2	Basic Concepts of Probability; Addition Rule and Multiplication Rule	
6	10/4 – 10/10	4-3, 5-1	Complements and Conditional Probability; Probability Distributions	
7	10/11 – 10/17	5-2, 5-3	Binomial Distributions and Parameters; Poisson Distributions and Parameters	Test 2 (Ch. 4 & 5) 10/16 – 10/17
8	10/18 – 10/24	6-1– 6-2	Standard Normal Distribution; Real Applications of Normal Distributions	
9	10/25 – 10/31	6-3	Sampling Distributions and Estimators	
10	11/1 – 11/7	6-4, 6-5	Central Limit Theorem; Assessing Normality	
11	11/8 – 11/14	7-1, 7-2	Estimating a Population Proportion; Estimating a Population Mean	
12	11/15 – 11/21	7-3	Estimating a Population Standard Deviation	Test 3 (Ch. 6 & 7) 11/20 – 11/21
13	11/22 – 11/28	8-1, 8-2	Basics of Hypothesis Testing; Testing a Claim About a Proportion	
14	11/29 – 12/5	8-3	Testing a Claim About a Mean	
15	12/6 – 12/12	8-4	Testing a Claim About a Standard Deviation or Variance	
16	12/13 – 12/18	10-1, 10-2	Correlation; Regression	Test 4 (Ch. 8 & 10) 12/17 – 12/18

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Other Course Information

Enrolling in Pearson | MyLab | Statistics

All homework assignments and tests in this course are to be completed on the *MyLab Statistics* web site. Students are expected to enroll in *MyLab Statistics* via the NHTI Canvas course with **permanent (not temporary) access** by no later than **September 14, 2020** (which is the last day to drop the course for a full refund). **Students who fail to meet this deadline are eligible to be dropped from the course as Never Attended.**

Note that the instructions in the **Pearson MyLab Statistics for Elementary Statistics** kit assume you will be logging in directly to Pearson to enroll. Your MATH 251C-ES course is connected to Pearson through Canvas, so you do not need a course ID.

To enroll in the *MyLab Statistics* course, follow these instructions:

- 1) In the Canvas navigation panel, click on the **MyLab & Mastering** link.
- 2) Click the  button.
- 3) Accept the **End-User License Agreement**.
- 4) Enter your Pearson account username and password to **Link Accounts**. You have an account if you have previously used a MyLab or Mastering product.

If you don't have a Pearson account, select **Create** and follow the instructions.

NOTE: Record your Pearson username and password. While the preferred way to enter the MyLab Math course is through Canvas, it is possible to log in directly to the Pearson web site with your username and password should Canvas become unavailable for any reason. A link to the course will appear on your Pearson **My Courses** page after you log in.

- 5) Then, do one of the following:
 - Enter the access code that came with your textbook or that you purchased separately.
 - Buy an access code using a credit card or PayPal.
 - Get temporary access by clicking the link at the bottom of the Access Code page.

NOTE: Temporary Access will expire after 14 days. You will need to purchase an access code to convert from temporary to permanent access. **All students must be enrolled in MyLab | Statistics with permanent access by no later than September 14, 2020.**

- 6) From the **You're Done** page, select **Go to My Courses**.

Maintaining access to the *MyLab Statistics* web site is the student's responsibility. If a student enrolls using temporary access, the student is expected to convert to permanent access before the temporary access expires. Assignments from duplicate accounts cannot be merged and, therefore, will not be accepted!

Students are responsible for contacting **Pearson Technical Support** to resolve any problems with creating or logging in to their accounts.

Attendance Policy

Logging into an online class is not sufficient, by itself, to demonstrate academic attendance by the student. Participation is indicated by the student's activity in responding to the weekly preparation questions and in the *MyLab Statistics* web site, which automatically tracks the time spent on each assignment and test. Attendance can also be demonstrated by engagement in an academically related activity, such as initiating contact with the instructor to ask a course-related question.

A student who has only logged into the online class but has not demonstrated any engagement toward course outcome-specific assignments, or course-content specific discussion participation, will be identified as Never Attended on the official attendance roster. A student who has not completed any assignments for any continuous one-week period without contacting the instructor is subject to termination from the course with a grade of AF. All course work must be completed by **Friday, December 28, 2020**.

Recommended Sequence for Study

The following is a recommended sequence for study to properly prepare for tests:

- 1) Start with the **Course Schedule** in this syllabus to determine what to study each week.
- 2) Read the **textbook section** for the topic you want to study. The online textbook is available by expanding the **Chapter Contents** tab in *MyLab Statistics*. The online textbook provides animated lessons, example videos, and You Try It problems to help you assess your learning as you go. (The HTML eBook is an alternate form of the book that can be read online without the Adobe Reader.)
- 3) Watch the **section video** to learn how to solve sample problems. These videos are available through the online textbook or by searching the **Multimedia Library** in *MyLab Statistics*. Most modules include additional YouTube videos or videos produced by the instructor which are provided to clarify concepts being studied.
- 4) View the **PowerPoint Lectures** posted in Canvas. These lectures were produced by your instructor and will often show calculator-based solutions not given in the textbook or in the publisher's version of the slides.
- 5) Try the **homework problems** for the section you just studied. Keep a notebook containing a copy of each homework problem and your worked-out solution to use as a reference while taking tests.
- 6) Here are some suggested things to try if you get stuck:
 - Check the **Technology Tips** and **Selected Solutions** pages in each weekly module to see if there is a handout that deals with the topic. These documents have been prepared by your instructor and demonstrate how to use the calculator or StatCrunch to solve problems in the homework and on tests.
 - Choose **Ask My Instructor** on the **Question Help** menu in the homework window. An email containing a copy of the problem you are working on and your question will be sent to your instructor who will then respond via email with a solution based on your choice of technology (TI calculator or StatCrunch).
 - Request a **Zoom session with the instructor**. These sessions will be open to the entire class, similar to office hours. Typically, one or two students in addition to the requesting student will attend these sessions.
 - Enroll in the **NHTI Math Lab Online Tutoring** course for access to NHTI tutors via Zoom. A link to Online Tutoring is provided in Canvas.
 - Use the **Smarthinking Online Tutoring Service**, which is available 24 hours a day, 7 days a week. You can obtain help by chatting with a tutor or by e-mail. To access Smarthinking, click the Smarthinking Online Tutoring tab in the Canvas course navigation panel. To obtain support and instructions for using Smarthinking, use this link:
<http://www.smarthinking.com/static/customerSupport/usersGuideFAQ/>

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NHTI ACADEMIC AFFAIRS NOTICES

For inclusion with all course syllabi

Students are expected to read the [Academic Affairs Notices](#). NOTE: These are the same for every course at NHTI and are updated every semester.

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