Course Syllabus
Academic Year: 2021-2022
Course: AP Stats
Teachers: -

AP Statistics

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students cultivate their understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions, and conclusions.
The AP Statistics course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics.

Prerequisites

The AP Statistics course is an excellent option for any secondary school student who has successfully completed a second-year course in algebra and who possesses sufficient mathematical maturity and quantitative reasoning ability. Because second-year algebra is the prerequisite course, AP Statistics is is offered to students either the junior or senior year.

Course Material

Textbook

Starne, D. S., Tabor, J., Yates, D. S. and Moore, D. S. (2015). *The Practice of Statistics.* New York: W. H. Freeman and Company/BFW.

The course follows the textbook in teaching the topics of this course. The big ideas are explained during classes, students study the text and apply the material in homework exercises.

Digital Learning Environment

Google Classroom is used as digital learning environment for courses taught.
Announcements are posted here. Homework that must be hand in digital, must be uploaded in Google Classroom.

Calculator

TI84 Graphing Calculator
The graphing calculator is used for the solution of many problems. Test questions assume students have a graphic calculator and can use it for solving both exploratory and inferential problems.

Supporting Websites

Supporting course materials from different websites are used during the course.

Collegeboard

Website https://account.collegeboard.org/.
Students have to register for an account on College board. The course makes use of video's provided by this website and from testing opportunities provided here.

AP Stats Guy

The website https://apstatsguy.com/ provided by Mr. Nystrom, offers many supporting videos on the topics covered in the course. Students are encouraged to watch videos, especially on topics they struggle with.

Simulations and Hypothesis Testing

A couple of websites offer the possibility to perform simulations. Performing simulations is a big help to understand important concepts. Especially the teaching of the concept of Sampling Distributions, The Central Limit Theorem, Confidence Intervals and Hypothesis Testing are supported by making use of simulations. During the course students must perform simulations and interpret the results.
Websites used for simulations
- https://onlinestatbook.com/stat_sim/sampling_dist/
- https://www.macmillanlearning.com/studentresources/highschool/hsbridgepage/tps5e.html#anchor5
- https://zwan.shinyapps.io/sampledist/
- https://zwan.shinyapps.io/sampledistmean/

Website used for performing test
- https://jhvdz.shinyapps.io/sigtest/

Course Overview

This section provides an overview of the course content and the big ideas on which the course is founded. A more detailed overview is provided in the Course Schedule section.

Big Ideas

The fundamental big ideas underlying the course are[1]

BIG IDEA 1: VARIATION AND DISTRIBUTION (VAR)

The distribution of measures for individuals within a sample or population describes variation. The value of a statistic varies from sample to sample. How can we determine whether differences between measures represent random variation or meaningful distinctions? Statistical methods based on probabilistic reasoning provide the basis for shared understandings about variation and about the likelihood that variation between and among measures, samples, and populations is random or meaningful.

BIG IDEA 2: PATTERNS AND UNCERTAINTY (UNC)

Statistical tools allow us to represent and describe patterns in data and to classify departures from patterns. Simulation and probabilistic reasoning allow us to anticipate patterns in data and to determine the likelihood of errors in inference.

BIG IDEA 3: DATA-BASED PREDICTIONS, DECISIONS, AND CONCLUSIONS (DAT)

Data-based regression models describe relationships between variables and are a tool for making predictions for values of a response variable. Collecting data using random sampling or randomized

[1] https://apcentral.collegeboard.org/pdf/ap-statistics-course-and-exam-description.pdf?course=ap-statistics

experimental design means that findings may be generalized to the part of the population from which the selection was made. Statistical inference allows us to make data-based decisions.

The course content is divided into nine units, which are taught in this order. The chapters mentioned refer to the textbook used in the course:

- Sampling and Experimental Design (Unit 3 – big ideas [BIs] VAR, DAT) – CH. 4
- Exploring Univariate Data (Unit 1 – BIs VAR, UNC) – CH. 1, 2
- Exploring Bivariate Data (Unit 2 – BIs VAR, UNC, DAT) – CH. 3
- Probability, Random Variables, and Probability Distributions (Unit 4—BIs VAR, UNC) – CH. 5, 6
- Sampling Distributions (Unit 5—BIs VAR, UNC) – CH. 7
- Confidence Intervals for Proportions and Means (Unit 6, Unit 7 – BIs VAR, UNC, DAT) – CH. 8
- Significance Test for Proportions and Means (Unit 6, Unit 7 – BIs VAR, UNC, DAT) – CH. 9, 10
- Significance Test for Categorical Data: Chi-Square (Unit 8 – BIs VAR, DAT) – CH. 11
- Inference for Regression: Slopes (Unit 9 – BIs VAR, UNC, DAT) – CH. 12

Course Skills

The AP Course and Exam Description[2] distinguishes four main categories of course skills:

(1) **Selecting Statistical Methods**, select methods for collecting and/or analyzing data for statistical inference.
(2) **Data Analysis**, describe patterns, trends, associations, and relationships in data.
(3) **Using Probability and Simulation**, explore random phenomena.
(4) **Statistical Argumentation**, develop an explanation or justify a conclusion using evidence from data, definitions, or statistical inference.

Based on this division twenty skills are formulated which students acquire by successfully completing the course. These skills are related to a list of 80 topics which together cover the course contents. For each topic one or more learning objectives are formulated.
The topics and the related learning objectives form the framework of the course, see the overview in the next section.

Course Schedule

A 50-minute lesson is given five times a week.
The schedule below presents the topics per week. More detailed information about topics per class hour are provided to the students on a weekly basis.

[2] https://apcentral.collegeboard.org/pdf/ap-statistics-course-and-exam-description.pdf?course=ap-statistics

COURSE WEEK	CALENDAR WEEK	DATE (SUNDAY)	SKILLS CATEGORY[3]	TOPIC	TEXTBOOK
1	35	2021-08-29	1	Sampling and Surveys	4.1 - 4.2
2	36	2021-09-05	1	Designing Studies	4.2- 4.3
3	37	2021-09-12	1	Designing Studies	CH. 4
4	38	2021-09-19	2	Exploring Data with Graphs	1.1 - 1.2
5	39	2021-09-26	2	Exploring Data with Summary Statistics	1-3 - '2.1
6	40	2021-10-03	2	Modeling Data	CH. 2
7	41	2021-10-10	2	Normal Models	CH. 2
8	42	2021-10-17	2	Review week	CH.1 - CH.2
9	43	2021-10-24	2	Bivariate Analysis (1)	3.1
10	44	2021-10-31	2	Linear Models	3.1 - 3.2
11	45	2021-11-07	2	OLS Regression	3.2; 12-2
12	46	2021-11-14	3	Probability	5.1 - 5.2
13	47	2021-11-21	3	Independency of Events	5.3
14	48	2021-11-28	3	Random Variables	6.1 - 6.2
15	49	2021-12-05	3	Random variables	6-1 - 6.2
16	50	2021-12-12	3	Binomial and Geometris RV's	6.3
	51	2021-12-19		Semester Exam Week	
	52	2021-12-26		Christmas Break	
	53	2022-01-02		Christmas Break	
20	1	2022-01-09	3	Sampling Distributions of Proportions	7.1 - 7.2
21	2	2022-01-16	4	CI for proportions; Sampl. Distr. For Means	7.1 - 7.3
22	3	2022-01-23	4	CI's for proportions and means	8.1 - 8.3
23	4	2022-01-30	4	Hypothesis Testing	9.1 - 9.2
24	5	2022-02-06	4	Hypothesis Testing	CH. 9
25	6	2022-02-13	4	Comparing Population Proportions	10.1
26	7	2022-02-20	4	Comparing Population Means	10.2
27	8	2022-02-27	4	Chi-Square Goodness of Fit test	11.1
28	9	2022-03-06	4	Chi-Square test on (in)dependence	11.2
29	10	2022-03-13	4	Wrap up Ch. 9 - Ch. 11	
	11	2022-03-20		Spring Break	
30	12	2022-03-27	4	Inference for Linear Regression	12.1
31	13	2022-04-03	4	Transforming to Achieve Linearity	12.2
32	14	2022-04-10	4	Exam Training	
33	15	2022-04-17	4	Exam Training	
34	16	2022-04-24	4	Exam Training	
35	17	2022-05-01		Week of AP Stats Exam	
36	18	2022-05-08		Project	
37	19	2022-05-15		Project	
38	20	2022-05-22		Project	
39	21	2022-05-29		Project	
40	22	2022-06-05		Presentations	

[3] The number refers to the categories in the section Course Skills

Assessment

Every week at least one homework assignment is offered which is graded.
From January, the homework assignment consists of one or two old AP exam questions or of 15-20 multiple choice questions.
Each quarter, students must take two tests, each on one or two book chapters.
The quarter grades are based on the homework assignment grades for 60% and on the test grades for 40%.

Project

After the central exam on May 5th, 2022, students work on a group project.
This project focusses on analyzing the influence of the covid-19 pandemic and climatological variables on air quality.
Learning objectives related to this project:
- collecting and cleaning data from open data sources
- presenting data with graphs and summary statistics
- comparing groups of data using hypothesis testing
- describing relationship between quantitative variables using OLS regression and interpreting the results

Curriculum Requirements

The curriculum of an AP Stats course must meet six conditions.[4] This section checks the curriculum on these six requirements.

(1) The students and teacher have access to a college-level statistics textbook, in print or electronic format.

See section Course Material for the prescribed textbook.

(2) The course provides opportunities for students to interpret standard computer output and use graphing calculators with statistical capabilities to describe data, determine probabilities, and perform tests.

A graphing calculator is described for this course, see section Course Materials. In many exercises, students use the possibilities of this calculator to solve them. Among these exercises there are exercises to find the equation of the OLS regression line, to calculate probabilities from binomial and from normal distributions, to calculate the boundaries of confidence intervals and to perform a hypothesis test.

4 https://apcourseaudit.inflexion.org/start/vault/download/v1/MTIyNDEyNA==/t/1/d/1/base/3dc655e4e98809766bd609014ca24677

interpreting computer output is practiced, for example, in problems about OLS regression and testing hypotheses. In the project at the end of the course, students use MS Excel to perform OLS regression analyses and an online applet to perform hypothesis testing.

(3) The course is structured to incorporate the big ideas and required content outlined in each of the units described in the AP Course and Exam Description (CED).

See section Course Overview.

(4) The course provides opportunities for students to develop the course skills related to Skill Category 1: Selecting Statistical Methods, as outlined in the AP Course and Exam Description (CED).

(5) The course provides opportunities for students to develop the course skills related to Skill Category 2: Data Analysis, as outlined in the AP Course and Exam Description (CED)

(6) The course provides opportunities for students to develop the course skills related to Skill Category 3: Using Probability and Simulation, as outlined in the AP Course and Exam Description (CED).

(7) The course provides opportunities for students to develop the course skills related to Inference and Skill Category 4: Statistical Argumentation, as outlined in the AP Course and Exam Description (CED).

The course is built around the four formulated course skills, as shown in the weekly program. See the Course Schedule section. The focus of the course is to help and encourage students to acquire the skills. In the
This schedule is worked out in handouts per week, which include an extensive description of the topics discussed, the related learning goals as formulated in the Course and Exam Description[5] and the assignments to be made. As an example, two handouts have been added to this syllabus as attachments.
Finally, the group project after the AP Stats exam is a training in the use of the acquired skills and an encouragement for students to further develop these skills in their academic life.

[5] https://apcentral.collegeboard.org/pdf/ap-statistics-course-and-exam-description.pdf?course=ap-statistics

Appendix Example Handouts

This appendix contains the handouts for 2021 calendar week 46, introduction to probability theory and for 2022 calendar week 02, sampling distributions.
More examples and other course material can be found here:
https://apstats.zwannen.nl/index.html.

Code

Handout week 46

AP Stats course
Teacher: -
Handout week 46

Literature
Starnes D. S., et al. (2015). *The Practice of Statistics* (5th ed.). New York: W. H. Freeman and Company/BFW.

Handout per lesson

Lesson 1 Sun 2021-11-14

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
1A	Identify the question to be answered or problem to be solved (not assessed)	4.1	Introducing Statistics: Random and Non-Random Patterns?	VAR-1.F	Identify questions suggested by patterns in data. [Skill 1.A]

Preparation for lesson

Study Starnes et al. (2015), p. 286 - 294.

Class Activities

Topics to discuss:

- what does probability mean?
- what does probability mean in these sentences:
  - if you toss a coin, the probability of heads is 0.5?
  - if you roll a dice, the probability of the outcome six is 1/6?
  - if you are vaccinated with the Pfizer vaccine against covid-19, the probability that you will be infected with covid is 25%?
  - the probability that it will rain tomorrow in Amsterdam is 10%?
  - the probability that Djokovic will win the tennis match against Nadal is 75%?
- Three kinds of probabilities:
  - pure theoretical; calculated by reasoning
  - observational; based on experiments/ collected data and relative frequencies
  - 'tittle-tattle' probabilities (subjective probabilities)
- Law of large numbers

Lab

- Excercises 5.1, 5.2
- Activity on p.290 using TI84; and a simulation
- Before technical tool age: Random Numbers, A Million Random Number Digits
- Exercise 5.12 (gambler's fallacy), 5:13

Homework for next lesson

- Study section 5.1
- Exercises: 5.1, 5.2, 5.11, 5.12
- Watch AP 4.1 Daily Video 1; write up the take aways at the end of the video

Lesson 2 Mon 2021-11-15

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
3A	Determine relative frequencies, proportions, or probabilities using simulation or calculations.	4.2	Estimating Probabilities Using Simulation	UNC-2.A	Estimate probabilities using simulation. [Skill 3.A]

Preparation for lesson

See homework previous lesson

Class Activities

Discuss:

- questions about last lesson or homework
- Take Aways AP 4.1 Daily Video 1
  - A Random Process is a situation where all possible outcomes that can occur are known, but individual outcomes are unknown
  - Patterns of random occurrences may include strings or runs of outcomes that appear to be non-random
- simulations to estimate probabilities
  - random numbers; a Random Number Generator: a "contradictio in terminus"; see fraud with random number generator
- section 5.1 Summary, p.299

Lab

- Activity on p.293
- Watch AP 4.2 Daily Video 2

Homework for next lesson

- Study section 5.1
- Exercises: 5.12, 5.16, 5.21
- Watch AP 4.2 Daily Video 1, write up the take aways

Lesson 3 Tue 2021-11-16

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
3A	Determine relative frequencies, proportions, or probabilities using simulation or calculations.	4.3	Introduction to Probability	VAR-4.A	Calculate probabilities for events and their complements. [Skill 3.A]
4B	Interpret statistical calculations and findings to assign meaning or assess a claim.	4.3	Introduction to Probability	VAR-4.B	Interpret probabilities for events. [Skill 4.B]

Preparation for lesson

See homework from previous lesson

Class Activities

Discuss

- homework and questions
- take aways AP 4.2 Daily Video's

Theory

- book section 5.2, pp. 305-309
- calculating probabilities the formal way
  - definitions
  - basic rules
  - complement rule
  - legitimate probability models

Lab

- Excercises, selection from 5.39 to 5.48

Homework for next lesson

Watch: AP 4.4 Daily Video 1, write up the take aways Exercises: 5.49, 5.50, 5.55

Lesson 4 Wed 2021-11-17

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
4B	Interpret statistical calculations and findings to assign meaning or assess a claim.	4.4	Mutually Exclusive Events	VAR-4.C	Explain why two events are (or are not) mutually exclusive. [Skill 4.B]

Preparation for lesson

Study: see homework previous lesson

Class Activities

Theory, book section 5.2:

- general addition rule for two events
- using Venn Diagrams to calculate probabilities
- two-way tables or contingency tables
- general addition rule for three events

Discuss

- homework exercises
- take aways AP 4.4 Daily Video 1

Lab

- Exercises 5.51, 5.57, 5.58, 5.59, 5.60

Homework for next lesson

- Exercises above if not made during class
- Prepare for quiz about sections 5.1 and 5.2

Lesson 5 Thu 2021-11-18

Activities

- Quiz about sections 5.1 and 5.2 (25 minutes)
- After handing in the quiz answers, work on the exercise below. It is allowed to work together on this exercise.

Exercise

Make a contingency table with information about all the grade 11 and grade 12 students. Put home country in the rows and gender in the columns.

Home Country	Female	Male
USA		
Korea		
...		
...		

Assume a random student from all 11th and 12th graders is selected randomly.

i. What is the probability this student is a male student?
ii. What is the probablity the home country of this student is an Asian country?
iii. What is the probability the home country is not an Asian country?
iv. What is the probability this student is a female from Korea?
v. What is the probability this student is a female or comes from Korea?
vi. If it is known that the selected student is a male, what is the probability his home country is the USA?
vii. Same question as (v) if the student is a female.
viii. If it is known that the selected student's home country is the USA, what is the probability that it is a male student.
ix. See question (vii); what is the probability that it is a female student?
x. What is the probability this student likes statistics? ;-)

Homework

Exercise above

Handout week 2

AP Stats course
Teacher: -
Handout week 2

Literature
Starnes D. S., et al. (2015). *The Practice of Statistics* (5th ed.). New York: W. H. Freeman and Company/BFW.

Handout per lesson

Lesson 1 Sun 2022-01-09

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE

No class today

Lesson 2 Mon 2022-01-10

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
1A	Identify the question to be answered or problem to be solved (not assessed).	5.1	Introducing Statistics: Why Is My Sample Not Like Yours?	VAR-1.G	Identify questions suggested by variation in statistics for samples collected from the same population. [Skill 1.A]

Preparation for lesson

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Theory

Topic: Sampling Distributions
Book: Section 7.1, pp. 424-429

Class Activities

Discuss:

- Short recap Chapter 5 and Chapter 6
- Chapter 8 and subsequent chapters: Interference
- Link between previous and future chapters: Ch. 7 Sampling Distributions
- Difference between
  - population distribution, distribution in a population
  - sample distribution, distribution in a specific sample
  - sampling distribution of a sample statistic, e.g. the sampling distribution of the sample mean or the sampling distribution of the population proportion

The Sampling Distribution of a sample statistic - e.g. a sample proportion or a sample mean or a sample median - is the distribution of all possible values of this statistic for all samples with a given sample size.
In other words, given the population, draw all possible samples with a given sample size, calculate the value of the sample statistic for all these samples. The distribution of all these values is the Sampling Distribution for this sample statistic given this specific sample size.

Sampling Distribution of the Sample Proportion
Suppose a study on a population is being conducted; the variable of interest is a qualitative binary variable and the parameter of interest is the population proportion of 'successes'.
The study makes use of an SRS.
Many SRS's can be drawn from the population. Each of these samples has its own sample proportion p_{sample}. The distribution of all these possible p_{sample}'s is called the **Sampling Distribution of the Sample Proportion**.

Sampling Distribution of the Sample Mean
Suppose a study on a population is being conducted; the variable of interest is a quantitative variable and the parameter of interest is the population mean.
The study makes use of an SRS.
Many SRS's can be drawn from the population. Each of these samples has its own sample mean $\bar{x}$. The distribution of all these possible $\bar{x}$'s is called the **Sampling Distribution of the Sample Mean**.

Practice
Download Worksheet 2022 week02 (1).
Make the exercises on the worksheet.

Homework

Study handout, your notes and pp. 424-431 from the text book.

Homework to hand in

Worksheet 2022 week 02 (1); upload in Google Classroom before start of next AP stats class.

Lesson 3 Tue 2022-01-11

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
1A	Identify the question to be answered or problem to be solved (not assessed).	5.1	Introducing Statistics: Why Is My Sample Not Like Yours?	VAR-1.G	Identify questions suggested by variation in statistics for samples collected from the same population. [Skill 1.A]
3B	Determine parameters for probability distributions.	5.5	Sampling Distributions for Sample Proportions	UNC-3.K	Determine parameters of a a sampling distribution for sample proportions.
3C	Describe probability distributions.	5.5	Sampling Distributions for Sample Proportions	UNC-3.L	Determine whether a sampling distribution for a sample proportion can be described as approximately normal.
4B	Interpret statistical calculations and findings to assign meaning or assess a claim.	5.5	Sampling Distributions for Sample Proportions	UNC-3.M	Interpret probabilities and parameters for a sampling distribution for a sample proportion

Preparation for lesson

See homework previous lesson

Theory

Topic: Sampling Distribution of a proportion
Book: Section 7.1 and 7.2

Class Activities

Discuss

- homework from previous lesson
- key concepts discussed in section 7.1 of the text book
  - parameter versus statistic
  - sampling variability, pp. 425-426
  - sampling distribution
  - describing sampling distributions
    - Shape
    - Outliers
    - Centre
    - Spread; for interference applies: the lower the better
  - unbiased estimators, p. 429; the mean of the sampling distribution equals the value of the population parameter under study

Practice: Sampling Distribution of a proportion
Go to this website.
The app on this site can be used to simulate SRS's from a population with a known population proportion of successes. This can help to receive insight in Sampling Distributions of a Proportion.
Go to the tab 'Sample Proportion', study the text and make the exercises.

Homework

1. Study the key concepts mentioned/discussed in the handout.
2. Work through the tab 'Sample Proportions' on this website, i.e. study the text and make exercise E1. If you worked through Worksheet2022Week02_2 and did understand the concept of a sampling distribution, you can skip Exercise E1.

Homework to hand in

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Lesson 4 Wed 2022-01-12

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
3B	Determine parameters for probability distributions.	5.5	Sampling Distributions for Sample Proportions	UNC-3.K	Determine parameters of a a sampling distribution for sample proportions.
3C	Describe probability distributions.	5.5	Sampling Distributions for Sample Proportions	UNC-3.L	Determine whether a sampling distribution for a sample proportion can be described as approximately normal.
4B	Interpret statistical calculations and findings to assign meaning or assess a claim.	5.5	Sampling Distributions for Sample Proportions	UNC-3.M	Interpret probabilities and parameters for a sampling distribution for a sample proportion

Preparation for lesson

See homework previous lesson

Theory

Topic: Sampling Distributions of a Sample Proportion Book: 7.3, pp. 450-452

Class Activities

Discuss

- Sampling Distributions in general
- Sampling Distribution of a Sample Proportion

Practice

- Working with app on https://zwan.shinyapps.io/sampledist/, tab Sampling Distribution of a Proportion, to draw samples from a well known population and examine the Sampling Distribution.

Discuss

- Theory tab on https://zwan.shinyapps.io/sampledist/.

Homework

Study section 7.2 from the text book. Especially pay attention on the summary on p. 444 and the application of the theory in the example on pp. 445-446. Exercises: 7-29, 7-30, 7-36 (see work sheet)

Homework to hand in

Worksheet 2022 week 2 (3)

Lesson 5 Thu 2022-01-13

Learning Objectives

SKILL_ID	SKILL	TOPIC_ID	TOPIC	LO_ID	LEARNING_OBJECTIVE
1D	Identify an appropriate inference method for confidence intervals.	6.2	Constructing a Confidence Interval for a Population Proportion	UNC-4.A	Identify an appropriate confidence interval procedure for a population proportion.
3D	Construct a confidence interval, provided conditions for inference are met.	6.2	Constructing a Confidence Interval for a Population Proportion	UNC-4.C	Determine the margin of error for a given sample size and an estimate for the sample size that will result in a given margin of error for a population proportion.
3D	Construct a confidence interval, provided conditions for inference are met.	6.2	Constructing a Confidence Interval for a Population Proportion	UNC-4.D	Calculate an appropriate confidence interval for a population proportion.
3D	Construct a confidence interval, provided conditions for inference are met.	6.2	Constructing a Confidence Interval for a Population Proportion	UNC-4.E	Calculate an interval estimate based on a confidence interval for a population proportion
4C	Verify that inference procedures apply in a given situation.	6.2	Constructing a Confidence Interval for a Population Proportion	UNC-4.B	Verify the conditions for calculating confidence intervals for a population proportion.

Preparation for lesson

See homework previous lesson

Theory

Topic: Applying Sampling Distributions Theory
Book: 8.2

Class Activities

Discuss

- Review: Sampling Distributions of a Sample Proportion
- Homework questions 7-29, 7-30 and 7-36 (intro to Hypothesis Testing)
- Applying the theory about Sampling Distributions of a proportion
  - Hypothesis Testing; see exercise 7-36
  - Estimation of an unknown population proportion based on an SRS, see worksheet
- Estimation of an unknown population proportion
  - point estimation
  - interval estimation: point estimate plus/minus margin of error

Practice

- Worksheet 2022WK02_4 on Google Classroom.

Homework

- Read from the text book section 8.2, pp.492-499
- Make the exercises on Worksheet 2022WK02_4

Homework to hand in

From now on every week questions from old exams have to be handed is.
Work out these questions as it should be done on the exam.
Grading will be based on the central guidelines for grading exams.
Exam 2019: 1, 3.