Intro to Statistics (QL)

MATH1040 002

Course Description

Course Description: Emphasizes descriptive and inferential statistical procedures through simulation, sampling design, descriptive statistics, linear regression and correlation, probability, sampling distributions, hypothesis testing and confidence intervals, and technology to perform statistical analyses. Recommended for students desiring statistical literacy.

Pre-Requisite(s): ENGL 0900 w/C grade or better or appropriate placement score, AND within last year, MATH 0990 w/C grade or better OR appropriate placement score.

Semester: All
: This course is recommended for students in programs desiring statistical literacy, including but not limited to Social Science, Behavioral Sciences, and Nursing (college may require 1040 or 1050). This class includes descriptive and inferential statistical methods. Topics include sampling design, descriptive statistics, linear regression and correlation, probability, sampling distributions, and hypothesis testing and confidence intervals.

Course Student Learning Outcomes

- Identify and explain that Statistics is a science that includes asking questions, collecting data, using statistical methods to summarize the data, making inferences, forming conclusions, and making decisions.
- Effectively summarize data by identifying different types of data, variables and studies, recognizing and applying concepts of experimental design and sampling, constructing and interpreting graphical representations of data, determining and

using measures of central tendency, variation, and relative standing to describe and compare distributions.

- Calculate and interpret probabilities.
- Identify and apply the Normal distribution model.
- Describe sampling distributions and the results of the Central Limit Theorem.
- Apply and interpret the concepts of statistical inference including hypothesis testing and estimation using confidence intervals.
- Perform and interpret a linear regression analysis.
- Organize and communicate statistical work clearly and logically, using correct notation and precise explanations.
- Use statistical software to perform analyses using normal models and randomization and simulation.

College Wide Student Learning Outcomes

- Developing quantitative literacy
- Developing the knowledge and skills to be civically engaged
- Thinking critically
- Acquiring substantive knowledge in the field of their choice
- Communicating effectively

Course Prerequisites

Within the past year you must have completed an algebra course (such as Math 0990 or Math 1010), with a grade of C or better. Acceptable substitutions for this course are an appropriate Accuplacer, ACT, or SAT math score, or placement through the SLCC placement process. Additionally, RDG/ENGL 0900 with a grade of C or better, or an appropriate Accuplacer, ACT, or SAT reading score. If you do not have documentation for

these prerequisites, you should enroll in a math class more appropriate for your background.

Communication Plan

Example language:

- I will respond to email within [insert your timeline]. I will offer feedback on major assignments within [insert your timeline]. The best way to contact me is via the Canvas Inbox, as I will prioritize this email over other modes of communication.
- In this course I will be posting interactive announcements which will offer specific opportunities for class questions and extra credit every other week.
- Additionally, I will be participating in the discussion forums with you to share my perspective within the discipline and to offer some nuances of interpretation that may not be present in your textbook.
- Lastly, we'll be holding small group Q & A sessions, where we can learn from our peers (and faculty) on some of the more difficult units within the course.

Required Text or Materials

Title: Introductory Statistics with Randomization and Simulation
Subtitle: (Online version available free within Canvas - linked on Homepage)

Title: GeoGebra Software
Subtitle: This is the calculator software required for the course

For more information on textbook accessibility, contact Accessibility & Disability Services at ads@slcc.edu.

General Education Information

QL (This course is a Quantitative Literacy course)

Online Courses and Testing at the Testing Center

For Online courses, the exams and final exam for this course **must** be taken at one of the SLCC Online Testing Centers (in-person) or in an instructor-approved proctored setting.

- Testing Services Website: https://www.slcc.edu/testing/locations-and-hours.aspx
- Locations and hours of the SLCC testing centers
- To make a Test Reservation:
    1. Log on to MySLCC
    2. Find the option card for “Testing Centers”
    3. Click on the relevant testing center to select the link to RegisterBlast to create an appointment at that testing center.
    4. You will choose “Proctored Exam” and then find our course.

Students who live within the Wasatch Front or within one hour of travel are expected to make every effort to take their exams on campus. If you do not live along the Wasatch Front, examples of “approved” proctor arrangements are local college testing centers and public libraries. If a proctor arrangement is necessary, it is important to find a proctor within the first two weeks of the course. Once you find a proctor and submit for approval, the testing center will contact the instructor for approval.

- If you cannot take our exams at a SLCC testing center, you must find a proctor and get it approved (by filling out the form found in the link) at least 14 days prior to an exam.
    - https://www.slcc.edu/testing/proctoring/index.aspx
    - Note: Choose “Proctoring for SLCC Online course students testing elsewhere”.

Brief Description of Assignments/Exams

HOMEWORK: The assigned homework exercises are the required minimum for you to demonstrate the learning objectives of the course and the mastery of the course concepts. You are encouraged to work more exercises than those assigned. Regular practice is essential in learning statistics. You should be prepared to spend at least two hours studying outside of the class for each hour you spend in class. Many students find that much more time is required in order to perform as well as they desire on exams. Homework will be submitted online. Details of how and when homework is due will be discussed in class.

ACTIVITIES/PROJECTS: Throughout the semester various activities are assigned. These will allow you to engage with the course material, explore applications, learn to use technology for statistical analyses, and practice statistical reasoning and reporting. Some of these may be quite short, some will take longer.

Your instructor will let you know which of these projects to post in your SLCC ePortfolio. Along with a polished final draft of the project, you will include a summary reflection paper. Your paper will be one page double spaced. You may use one or more of the following ideas to build your reflection paper.

- What have you learned?
- Discuss how the mathematics and statistics skills that you applied in this project will impact other classes you will take in your school career.
- Identify specific parts of the project and your own process in completing it that may have applications for other classes.
- Discuss how the project helped to develop your problem solving skills.
- Discuss how this project changed the way you think about real-world statistics applications. If your thinking was not changed, then discuss how the project supported your views about real-world math applications. (Note that the question is not about YOUR individual life or career. While you may include that if relevant, the question is about the broader world.)

General Education ePortfolio—Each student in General Education courses at SLCC maintains a General Education ePortfolio. Instructors in every Gen Ed course will ask you to put at least one assignment from the course into your ePortfolio, and accompany it with reflective writing. It is a requirement in this class for you to add to your ePortfolio, and this syllabus details the assignments and reflections you are to include. Your

ePortfolio will allow you to include your educational goals, describe your extracurricular activities, and post your resume. When you finish your time at SLCC, your ePortfolio will then be a multi-media showcase of your educational experience. For detailed information visit: http://www.slcc.edu/gened/eportfolio or http://eportresource.weebly.com

If you would like in-person help with your ePortfolio please visit an ePortfolio Lab on the Taylorsville-Redwood, Jordan, or South City Campus during business hours, and staff will help you. No appointment necessary. For lab hours and locations please look at the following site: http://eportresource.weebly.com/lab-information.html. For Digication tutorials, please go to the following site: https://slcc.digication.com/slcc_digication_tutorials/Welcome/

Questions regarding the ePortfolio can be directed to Emily.Dibble@slcc.edu.

QUIZZES: Each chapter will have one or two quizzes covering the statistical content for the chapter. You have 2 attempts on these quizzes. (They are not timed). You will also have quizzes on algebra content.

DISCUSSION BOARDS: Throughout the semester, you will participate in discussion boards that will allow you to interact with your classmates, discuss examples for various statistical concepts, and review for exams.

MID-TERM EXAMS:

For face-to-face courses, your instructor will let you know if your paper/pencil exams are to be taken in class or at a testing center. You are allowed to bring a calculator and one full page of notes (8.5x11) front and back to each exam. The majority of the test questions will not be multiple choice, but will require you to carefully show your work. You may earn partial credit on these questions. Show all steps toward your final solution clearly and concisely. Answers with no logical steps or work that cannot be read or clearly followed will be marked incorrect. Although GeoGebra software can't be used within the exams, screenshots of GeoGebra content will be within the exam for you to use and/or interpret.

FINAL EXAM:

The final exam for Math 1040 will be a paper/pencil comprehensive departmental examination emphasizing topics listed under the course objectives taken in a SLCC

Testing Center. You are allowed to bring a calculator and one full page of notes (8.5x11) front and back to this exam. You will have 120 minutes to complete the exam. More information is available in your CANVAS course.

It is an SLCC Math Department rule that students attaining a score of less than **50%** on the final shall receive a grade no higher than "D" for the course.

Late Work Rule

Homework (OHM Lumen) / Written Assignments / Projects / Discussion boards / Quizzes

1% will be deducted per day for all late work, with a min score of 50%

Exams

You have one week grace period to take any midterm exam in case of illness, business trip, etc (with appropriate documentation)

Final Exam

no late Final Exams under any circumstances.

Grading Scale

Your grade will be based on an accumulation of scores as follows:

Homework	15%
Activities/Projects	10%
Quizzes	5%
Disc boards /Participation	5%
Mid-term Exams (4)	40%

Final Exam 25%

Grade	Min.	Grade	Min.	Grade	Min.	Grade	Min.	Grade	Range
		B+	87%	C+	77%	D+	67%		
A	93%	B	83%	C	73%	D	63%	E	Below 60%
A-	90%	B-	80%	C-	70%	D-	60%		

How to Navigate to Canvas

Keys for Success (how to succeed in the course)

Statistics is a challenging course, however there are many available resources to help you succeed.

STRATEGIES FOR SUCCESS:

PUT IN THE TIME, STAY ON SCHEDULE! It is very important in this class that you set aside time each day to work on the course so that you can remain on schedule. You can do a better job at both understanding and retaining the material if you learn at an even pace. Trying to “cram” too much in one sitting will result in frustration and lower retention of the material. Recognize that you need time both to learn the material and time to complete your homework, etc. It will take a significant investment of time each day to be successful in this course. It is important that you have the course calendar readily available and refer to it frequently.

LEARN HOW TO LEARN AND WHERE TO GET HELP As with any math course, you need to find the best way for you to learn the concepts and skills. There are many options, including reading the textbook, taking notes, listening to an audio lecture, watching a video lecture, and many others. It is also crucial that you seek help when you need it. At the very beginning of the course you should spend time familiarizing yourself with available resources.

The STEM Learning Resources department works in collaboration with the Mathematics department to provide a variety of free academic support services. These services

include tutoring, workshops and project-based learning. For times and locations please go to this website: https://www.slcc.edu/stem/index.aspx

CALCULATOR: Help in learning to use GeoGebra is available in videos on Canvas and in the campus math lab or Learning Centers. You may want to bring a handheld calculator, that does not connect to the internet, for in-class exams.

USE THE SLCC RESOURCES General Learning Support & Tutoring Services provide support for SLCC students enrolled in any class at the College. All resources are provided free-of-charge. Ask your instructor about discipline-specific learning support and tutoring services.

TUTORING: If you need help with this course, there is Tutoring offered for free to all SLCC students. For more information, go to the STEM Learning Resources web page.

STEM Learning Centers: provide free assistance in Math, Science, Accounting, CSIS and Allied Health Classes at 6 campus locations.

Student Writing and Reading Center: provides in-person and online feedback on all writing assignments. It also provides tutoring in reading and conversation.

Library Services: provides research help, print and online resources, computers and study space.

ePortfolio Lab: provides drop-in assistance for all ePortfolio questions.

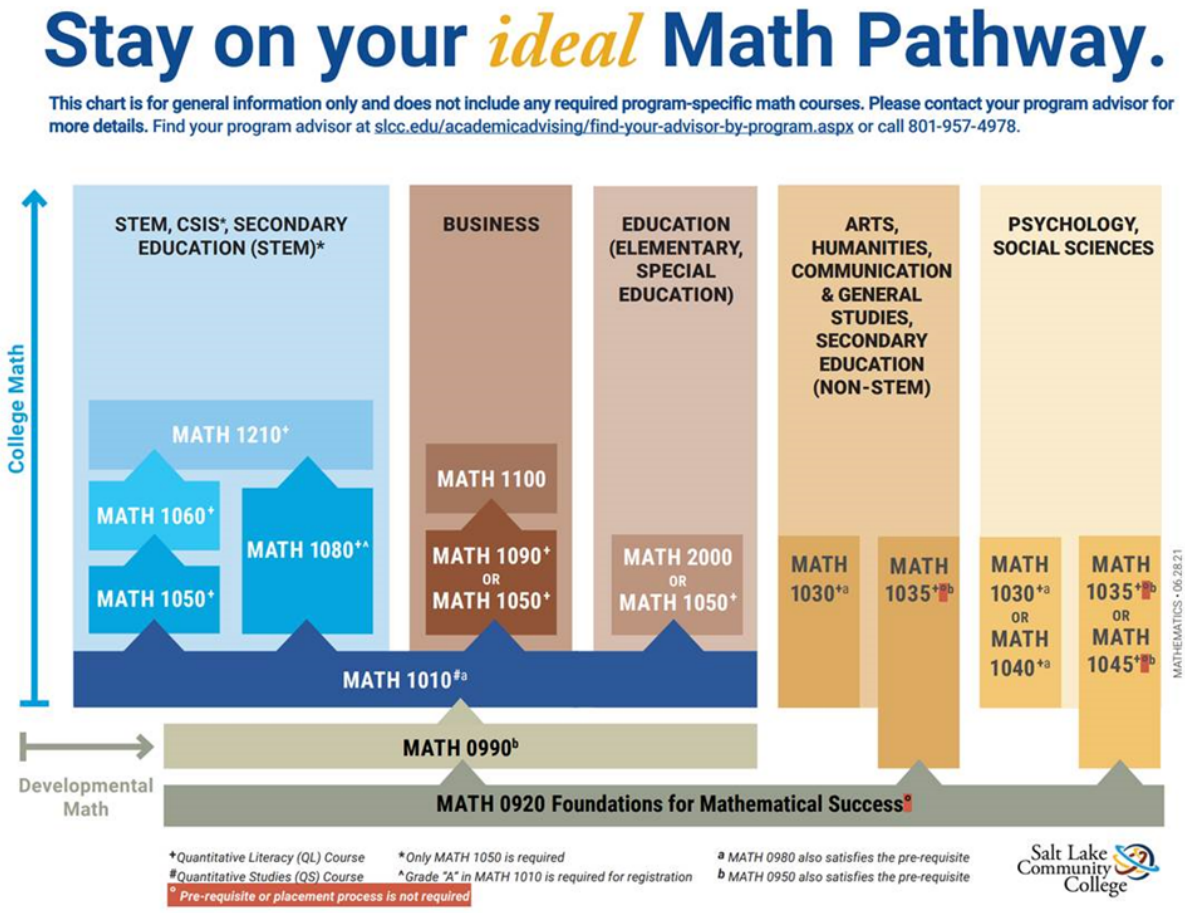
eLearning Support: provides support for navigating online and hybrid classes.

Business Resource and Innovation Center: provides tutors and a study space for students in Business and CSIS courses.

References for community and college resources: Although this is not an exhaustive list, it is a great place for your students to start looking to get the resources they need. The resources include after-school programs, childcare facilities, family and personal crisis centers, and much more. Please check it out.

https://www.slcc.edu/drc/community-resources.aspx

SLCC Math Pathways



http://www.slcc.edu/placement/dt/math/pathway.aspx

Cheating Rule

Cheating will minimally result in a failing grade of 0% for that assignment/exam without any possibility for that work to be made up, resubmitted, or for the failing grade to be substituted by any other work's grade. Moreover, cheating on a single assignment or exam can result in a failing grade for the entire class; this is typically the prerogative of the individual instructor. Cheating is not tolerated, so, take heed and do honest work to learn and develop intellectually. For more details about academic dishonesty, consult the Student Code of Conduct, where this topic is addressed in section C (see below too): https://www.slcc.edu/policies/policies/student_affairs/8.1.050.aspx,Sanctions for Academic Misconduct (taken from the Student Code of Conduct): Faculty, program

directors, associate deans, deans, and the provost for Academic Affairs are authorized to impose anyone or a combination of the following sanctions after finding a student responsible for acts of academic misconduct.

The possible sanctions include, but are not limited to

- verbal warning and reprimand,
- restriction of privileges, such as access to lab facilities, library facilities, or testing centers,
- failure of the exam, quiz, project, or other assessment,
- failure for the course,
- withdrawal from the course, or
- withdrawal from the academic program.

*****Upon the circumstance of catching a student cheating, even if the infraction seems minor or the student is remorseful, instructors are required to fill out the following form (the Dean of Students uses these forms to establish patterns of behavior):

Academic Misconduct Violation Reporting Form This form may be used by SLCC faculty members to report academic misconduct such as cheating, plagiarism, data misrepresentation, and unauthorized access as defined in the Code of Student Rights and Responsibilities. This Academic Misconduct Violation Form provides guidance to instructors, ensures minimum due process requirements are met, and allows for the tracking of repeat offenders at the College level.

Contingency Plan

Under Utah legislation, the governor can now call a "Remote Workday" given certain circumstances. In the event that class is canceled due to unforeseen circumstances such as inclement weather, power outages, or other emergencies, we will follow a contingency plan to ensure that you are able to continue your learning and stay on track in this course. You should check your Canvas announcements and inboxes to learn what is expected of you. Additionally, remember that there is a YouTube page with lectures for anytime you miss class. These resources are available within Canvas as well as on the YouTube channel https://www.youtube.com/@introductiontostatisticsat664

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

You can access the document by clicking on the following link: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, please visit the Institutional Syllabus under the Tutoring and Learning Support tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, please visit the Institutional Syllabus under the Advising and Counseling Support Services tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	A1.4 Homework	Assignment	10
	A2.1a Homework	Assignment	8
	A2.1b Homework	Assignment	22
	A2.2a Homework	Assignment	15
	A2.2b Homework	Assignment	10
	A3.1a Homework	Assignment	13
	A3.1b Homework	Assignment	8
	A3.1c Homework	Assignment	9
	A3.2a Homework	Assignment	16
	A3.2b Homework	Assignment	10
	A3.5 Homework	Assignment	12
	A6.1 Homework	Assignment	20
	A6.2a Homework	Assignment	17
	A6.2b Homework	Assignment	18
	A6.3 Homework	Assignment	15
	Chapter 1: ALGEBRA Quiz	Quiz	9

Due Date	Assignment Name	Assignment Type	Points
	Chapter 2: ALGEBRA Quiz	Quiz	11
	Chapter 3: ALGEBRA Quiz	Quiz	9
	Chapter 6: ALGEBRA Quiz	Quiz	12
	Final Exam: What Questions Do You Have? (Optional)	Discussion	0
	Unit 1: What Questions Do You Have? (Optional)	Discussion	0
	Unit 2: What Questions Do You Have? (Optional)	Discussion	0
	Unit 3: What Questions Do You Have? (Optional)	Discussion	0
	Unit 4: What Questions Do You Have? (Optional)	Discussion	0
	What Questions Do You Have? (optional)	Discussion	0
8/22	Chapter 1: Quiz	Quiz	13
8/22	OHM Student Assignment - Tutorial	Assignment	8

Due Date	Assignment Name	Assignment Type	Points
8/22	Orientation: Configure Your Canvas Profile and Notifications	Quiz	10
8/27	1.1 Homework	Assignment	7
8/27	1.2 Homework	Assignment	13
8/27	1.3 Homework	Assignment	15
8/27	1.4 Homework	Assignment	22
8/27	2.1 Homework	Assignment	12
8/27	Orientation: Introductions	Discussion	10
8/29	2.2-2.3 Homework	Assignment	48
8/29	2.4 Homework	Assignment	21
8/29	Chapter 2: Quiz	Quiz	26
8/29	Part I: Skittles Project	Assignment	25
9/3	Exam 1: In-Class Review Session	Discussion	10
9/5	Midterm Exam 1	Assignment	100
9/10	3.1-3.2a Homework	Assignment	15
9/10	3.2b Homework	Assignment	11
9/12	3.2c Homework	Assignment	24
9/12	3.2d Homework	Assignment	26
9/17	3.3-3.4 Homework	Assignment	29
9/17	Chapter 3: Quiz A	Quiz	8

Due Date	Assignment Name	Assignment Type	Points
9/19	3.5a Homework	Assignment	32
9/19	3.5b Homework	Assignment	56
9/24	3.5c Homework	Assignment	69
9/24	Chapter 3: Quiz B	Quiz	24
9/24	Part II: Skittles Project	Assignment	25
9/26	Exam 2: In-Class Review Session	Discussion	10
10/1	Midterm Exam 2	Assignment	100
10/3	4.1a Homework	Assignment	27
10/3	4.1b Homework	Assignment	21
10/8	4.1c Homework	Assignment	55
10/8	4.1d Homework	Assignment	36
10/8	Chapter 4: Quiz A	Quiz	21
10/10	4.2a Homework	Assignment	46
10/10	4.2b Homework	Assignment	44
10/15	4.2c Homework	Assignment	60
10/15	4.3a Homework	Assignment	6
10/15	Chapter 4: S4.2 Symbols Definitions Assignment	Quiz	17
10/15	Part III: Skittles Project	Assignment	25
10/22	4.3b Homework	Assignment	40
10/22	Chapter 4: Quiz B	Quiz	29

Due Date	Assignment Name	Assignment Type	Points
10/24	Exam 3: In-class Review Session	Discussion	10
10/29	Midterm Exam 3	Assignment	100
10/31	5.1-5.2 Homework	Assignment	27
11/5	5.3 Homework	Assignment	57
11/5	5.4 Homework	Assignment	29
11/7	5.5 Homework	Assignment	41
11/7	5.6 Homework	Assignment	21
11/7	Chapter 5: Quiz A	Quiz	19
11/7	Chapter 5: Quiz B	Quiz	14
11/12	5.7a Homework	Assignment	33
11/12	5.7b Homework	Assignment	40
11/12	Part IV: Skittles Project	Assignment	25
11/14	Exam 4: In-Class Review Session	Discussion	10
11/19	Midterm Exam 4	Assignment	100
11/21	6.1 Homework	Assignment	22
11/21	6.2 Homework	Assignment	12
11/21	Part V: Reflection and ePortfolio	Assignment	25
11/26	6.3 Homework	Assignment	39
11/26	6.4 Homework	Assignment	16
12/3	6.5a Homework	Assignment	41

Due Date	Assignment Name	Assignment Type	Points
12/3	6.5b Homework	Assignment	64
12/3	Chapter 6: Quiz	Quiz	29
12/5	Final Exam: In-Class Review Session	Discussion	10
12/12	Final Exam	Assignment	100