Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: MAT
Course and Section #: 1035-011
Course Title: Quantitative Reasoning with Integrated Algebra QL
Credits: 6

Course Description

Upon completion of this course, students should be able to communicate, interpret, and analyze quantitative information found in the media and in everyday life to make sound personal, professional, and civic decisions.

Course Attributes

This course has the following attributes:
☒ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☐ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Max Aeschbacher

Student Learning Outcomes

Upon successful completion, students should be able to:
1. Explain real world information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words), including making reasonable predictions of trend data.
2. Convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words) that are appropriate and accurate.
3. Perform calculations that are sufficiently comprehensive and elegant (clear, concise, etc.) to solve authentic problems.

4. Analyze real world data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions.
5. Make and evaluate important assumptions in estimation, modeling, and data analysis using a compelling rationale for why each assumption is appropriate.
6. Express quantitative evidence in support of an argument or specific purpose (in terms of what evidence is used and how it is formatted, presented, and contextualized).

Course Materials and Texts

REQUIRED SOFTWARE LICENSE: In this class, it is required to have a software license for Hawkes.

- If you have opted into ***Wolverine Access***, you will not need to purchase anything extra. You will have access to the software. If you opt *out* of Woverine Access, you should select the option for temporary access in Hawkes, and pay for the access when you can (don't wait too long!).
- Besides the homework, there are several additional resources available to you in Hawkes. With every section there are practice problems, animations of problem-solving methods, and instructional videos. These are a great resource to help you truly learn and understand the course material. Please take some time to familiarize yourself with these resources. You are paying for them; you might as well benefit from them.

TEXTBOOK (Optional): *Viewing Life Mathematically (With Integrated Review): A Pathway to Quantitative Reasoning*; Denley and Hall 2nd edition. You do not need a physical book. You have access to all the content through the Hawkes portal.

Course Requirements

Course Assignments, Assessments, and Grading Policy

HOMEWORK: Homework will be done online using Hawkes. Due dates are listed on Hawkes. All homework sections should be complete before taking exam on material, so due dates may fluctuate on exam weeks and project weeks. **There will be a penalty for late homework (you may still receive 50% credit for homework if it is more than 5 days late).**

EXAMS: There will be 3 exams and the comprehensive final. **No make-up tests will be given.** If you maintain at least an 80% average for your homework assignments, you will be able to replace low exam score with final exam percentage. (I will only do this if it will *help* your grade).

GROUPS: There will be a strong emphasis on group work in this class. You will be put into groups at the beginning of the semester and will have assignments that are assigned only to the group. Groups will be assigned randomly, and stay fixed for the semester. Changes are possible in extreme circumstances, but they are rare.

Homework (Online)	**15%**
Projects	**30%**

Exams (3 exams given Online with Proctorio)	**30%**
Attendance/Participation	**5%**
Final Exam	**20%**

Required or Recommended Reading Assignments

Click here to enter text.

General Description of the Subject Matter of Each Lecture or Discussion

Chapter 1 Pre-requisite content
Review whole numbers, rounding, order of operations, translating English phrases to Algebraic expressions, solving 1-variable linear equations.
Chapters 1.1 – 1.3: Critical Thinking & Problem Solving
In this module, students learn about inductive and deductive reasoning. In addition, they learn how to estimate in real world context such as budgeting for a party or estimating based on graphs. Lastly, in this section, students will understand different problem-solving strategies such as drawing pictures, developing tables, guess and check, etc.
Chapter 1 Pre-requisite content
Review operations on Integers
Chapters 2.1 – 2.4: Set Theory
In this module, students learn about set theory. From basic set notation to operations with sets and finishing up with applications solved using Venn Diagrams.
Chapters 3.1 – 3.2, 3.4: Logic
In this module, students learn about truth tables and the different fallacies.
Chapter 4 Pre-requisite content
Review operations on Rational Numbers
Chapters 4.1 – 4.3: Rates, Ratios and Percents
In this module, students learn about rates, ratios and percentages. They are discussed and evaluated in real-world context.
Chapter 7 Pre-requisite content
Review operations on Rational Numbers
Chapters 4.4, 7.4 – 7.5: Measurement
In this module, students learn to convert between different types of measurements (i.e. meters to feet). Students use the U.S. and metric conversion tables and unit analysis to convert between the various measurements.
Chapter 5 Pre-requisite content
Review operations on Real numbers, solving linear equations in 1-variable, Cartesian Coordinate System, graphing linear equations in 2-variable
Chapters 5.1 – 5.2, 5.7: Mathematical Modeling
In this module, students will explore linear and exponential modeling. They will know how to construct the different equations, create a table and graph as well as solve for various parts of the equation. To do this, students will not only understand the order of operations but logarithmic functions too.
Chapter 6 Pre-requisite content
Review percentages, reading graphs
Chapters 6.5, 6.1 – 6.3: Financial Mathematics
In this module, students will learn about budgeting, savings, and debt. They will look at simple interest and compound interest formulas as well as annuity and amortization formulas.
Chapter 10 Pre-requisite content

Review operations on Rational Numbers, Finding least common multiple (LCM)
Chapters 10.1 – 10.4: Fundamentals of Probability
In this module, students will learn about probability, which includes basic probability, single event probability and multiple events probability. Lastly, students will learn about expected value.
Chapter 11 Pre-requisite content
Review various graphs (bar graphs, pictographs, etc.), plotting on Cartesian Coordinate system, slope-intercept form, evaluating radicals
Chapters 11.1 – 11.4: Statistics
In this module, students will understand how to collect, display and analyze data. In addition, they will learn about the normal distribution and finding z-scores.
Chapter 13.1 – 13.4: Voting Theory
In this module, students will understand voting theory. They will explore the various voting methods (i.e., Jefferson Method, Hamilton Method, etc) and discuss the flaws with the different voting methods.

Required Course Syllabus Statements

Generative AI
AI is here to stay. I like it, and I use it in my work. I expect that students are using AI as well, and I encourage this exploration! There are a few instances in this course where AI is strictly prohibited:

- You may not use AI in any form on your exams.
- While you are allowed to use AI as a resource as you work on your group projects, you must create and submit your own work. I'm excited to read what you come up with! Conversely, I have no excitement for reading what AI spits out for you (unless I explicitly ask for it). If I have good reason to believe that your project submission was written with AI, you might receive a zero for the project.

Using Remote Testing Software
☐ This course does not use remote testing software.

☒ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.