Intermediate Algebra (QS)

MATH1010 005

Course Prerequisites

ENGL 0990 w/C grade; AND within the last year MATH 0990 (or equivalent) w/C grade or better or appropriate placement score

Course Description

This course bridges the gap between developmental/Secondary Math III and PreCalculus or a technical certificate. Topics of study include: functions; quadratic equations; polynomial, rational, exponential and logarithmic expressions; radicals and complex numbers; introduction to conic sections; real world applications. Topics will be presented in a conceptual and integrated approach.

Pre-Requisite(s): ENGL 0990 w/C grade; AND within the last year, MATH 0990 (or equivalent) w/C or better or placement into Math 1010 by SLCC's placement process.

Semester(s): All

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This course includes in more depth basic algebraic topics introduced in Elementary Algebra as well as introducing additional topics. These include linear equations; graphing; systems of linear equations; linear inequalities and absolute value; radicals; exponential expressions (including negative and rational exponents); polynomials;

rational expressions; rational equations; quadratics; introduction to conic sections; exponential and logarithmic functions.

COURSE OBJECTIVES:

Upon completion of this course students should:

1. Have competent algebraic skills for: three by three linear systems with unique solutions; operations with polynomials, radicals, rational expressions, and absolute values; and have competent algebraic and graphic skills for: equations of lines, two by two systems, inequalities, and the quadratic equation.
2. Understand how linear equations, quadratics, systems, radicals, and graphs relate to realistic applications.
3. Advance readily to higher-level college mathematics courses, e.g., College Algebra.

Course Learning Outcomes

Upon completion of this course students should:

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3. Advance readily to higher-level college mathematics courses, e.g., College Algebra.

Course Student Learning Outcomes

- Discover mathematical knowledge via the self-exploration and integration of content topics, communicating and demonstrating findings as preparation for subsequent courses.
- Apply computational and analytical skills to resolve mathematical problems involving polynomial, rational, radical, exponential, and logarithmic functions.
- Interpret and evaluate relationships between two or more variable quantities, representing them verbally, algebraically, and/or geometrically (i.e., graphically), and translating between these variables.
- Persevere throughout the entire process of understanding, modeling, and solving real-world application problems.
- Think critically about problem-solving methods as well as the potential solutions that they generate, demonstrating both sound reasoning skills and a healthy sense of skepticism while enroute to a solution.

College Wide Student Learning Outcomes

- 1. Acquire substantive knowledge 2. Communicate effectively 3. Develop quantitative literacies 4. Think critically 5. Express creatively 6. Knowledge and skills to be civically engaged 7. Work with others in a professional and constructive manner 8. Develop information literacy 9. Develop computer literacy

Communication Plan

I will be here for you as a resource to help you understand material. This means:

- I will be available for messages. I will respond to messages within 24 hours, except possibly on the weekend. The best way to reach me is by Canvas message.
- I will usually leave the first part of Mondays available as time to ask homework questions and master the previous week's material in an interactive way.
- I will provide feedback on written work. This is mainly exams but will sometimes include some other assignments. Usually this kind of feedback will get back to you within 7 days of the due date. If you turn it in late, I may not provide as much feedback for you.

- I will have weekly office hours so you can come hang out with me and do some math together.

I also plan to make a weekly announcement every Friday which will keep you updated on important due dates coming up and help you prepare for big assignments like projects and exams.

Required Materials

All coursework will be available through Canvas. The textbook is available in your Canvas course. You can view it section by section in each module. Because of the interactive nature of the textbook, there is no hard copy of the textbook available.

You will complete your homework assignments online through Canvas. You will be using Lumen Learning Online Homework Manager (OHM), which is integrated into Canvas, to complete your section homework and quizzes. The fee for OHM is part of the course fee for this class.

Calculators

A scientific calculator is required for the course. Students are allowed (as per instructor's restrictions) to use calculators provided they show clear/precise work on every problem on the exams in order to receive full credit for correct answers. No cell phones or devices with internet connectivity may be used on an exam. Graphing calculators may not be used on an exam. A current example of an acceptable scientific calculator is a TI30. It is the instructor's prerogative to give exams or portions of regular exams that do not allow a scientific calculator.

Brief Description of Assignments/Exams

Homework: Homework should be completed for each section of learning material in the course. You will use the Lumen OHM (Online Homework Manager), which is integrated into your Canvas course. You should work your homework problems in a notebook, labeling each section and problem number. This will help you prepare for exams and organize your steps and thinking. After working out the problem on paper, enter your result online and check.

Homework will typically be due on Monday nights. It is recommended that you work on your homework throughout the week so you do not have to rush on the weekend. This might change if it is an exam week. Watch out for my announcements and the listed assignment due dates to make sure you are finishing them on time.

Regular practice is essential in learning mathematics. Most students find that the more homework they practice, the better they do on the exams. If you don't understand a question or how to input the answer, you should stop and get help on that question instead of continuing to get it wrong. Many homework questions are accompanied with a video for reference. Please watch the video (if available), refer to your textbook, get help from a tutor, or contact your instructor for help with the problem and concepts.

Project(s) and ePortfolio: You will complete project(s) this semester applying techniques you've been learning to bigger problems. At least one of these will be posted to your SLCC e-Portfolio Along with the polished final draft of your project, you will include a brief summary reflection paper.

General Education classes at SLCC require students to add to their ePortfolio. Templates, helps and guidance can all be found at http://www.slcc.edu/eportfolio/index.aspx

Quizzes: Short quizzes to help assess your progress at mastering the course content and give you feedback on your work will be given throughout the semester. See the course schedule for dates and topics.

Exams: There will be three paper exams this semester. The dates for these exams can be found on the class schedule. There is NOT a retake option for the exams. **Exams will be taken in our classroom during a regularly scheduled class period.**

Exams will be on paper and will require you to show work. All exams will be "closed book" and no written notes of any kind are allowed. A standard scientific calculator may be used on exams as per your instructor's prerogative. A graphing/programmable calculator/cell phone/PDA or any device capable of connecting to the internet is NOT allowed. Full credit will only be awarded on exam questions when answers are justified by a legible and logically valid argument.

I have a policy of dropping your lowest exam score and replacing it with your score on the final, if that score is higher.

Final Exam: The final exam for Math 1010 will be a paper/pencil comprehensive departmental examination emphasizing topics listed under the course objectives. You will have 120 minutes to complete the exam. More information is available in your CANVAS course. The is no retake option for the final exam, nor can the final exam score be dropped.

- 60% Final Exam Rule: The Math Department's 60% Final Exam Rule is that if a student scores less than 60% on their final exam then their total course grade will be the lower of a D or their grade as calculated according to the weights of the grading categories on their syllabus. In other words, if a student fails their final exam (scores less than 60%), then the highest total course grade that they can earn for the course is a D.

Attendance and Participation: Class attendance and participation is expected and essential to success in this course. Participation will be defined by your instructor and may include activities such as quizzes or completing various assignments during the scheduled class time. There is a very high correlation between attendance and success in any mathematics class. If a student does not attend one of the first two class meetings, the instructor may drop the student from the class.

Due Dates and Late Work

It is important in this math class to stay up to date on all assignments. All assignments are expected to be completed by the due date. Completing any assignment after the due date will result in a 2% daily deduction in points, calculated automatically by Canvas.

Grade Weights

Your grade will be based on a weighted average as follows.

- Homework (20%)
- Quizzes (10%)
- Project(s) + ePortfolio (10%)
- Exams (30%)

- Final Exam (30%)

Many extra credit opportunities will be available throughout the semester, so watch out for those. You can earn up to 3% extra credit total in the class. The available extra credit will exceed this in case you miss some of the opportunities.

Grading Scale

The grade you earn will be recorded on your SLCC transcript. Grades are not negotiable. No work will be accepted after the last day of class. Limited, if any, extra credit opportunities may be available. If you need to achieve a certain grade in this course be careful to complete all assignments, plan appropriate time for studying, and get help as needed so that you achieve your goal.

An average percent will be computed, and the final grade will be determined using the following scale:

93–100% = A

90– 92% = A-

86- 89% = B+

83–85% = B

80–82% = B-

76–79% = C+

73– 75% = C

70– 72% = C-

66– 69% = D+

63–65% = D

60–62% = D-

Below 60% = E

Incomplete Grade: Per college policy, incompletes can only be considered when a student has completed at least 70% of total course work and is passing the class at the time the incomplete is requested. In Math 1010, this amounts to all course work being completed, except the final exam. So, if a Math 1010 student has completed all work minus the final and is passing, then their instructor may consider, but does not have to grant, an incomplete grade to that requesting student with a college-excused reason.

Keys for Success (how to succeed in the course)

Make a Time Commitment

This is a 4-credit-hour course and you should expect to spend, on average, 8-12 hours per week outside of class studying or at least 16 hours if taken as an Online class. Do not assume an online class will require less engagement than an in-person class. If anything, taking this class online will require even more dedication and engagement from the very start.

Additional Policies

Classroom Deportment: Each student is responsible for their own behavior. Any student who shows a pattern of disrespect for others, or who at any time displays egregious disrespect for others, will be subject to penalties as per the student code of conduct.

Cheating: Typically, cheating on any assignment minimally results in a failing grade for that assignment, but possibly a failing grade for the entire class. Cheating is not tolerated; so, take heed and do honest work to learn and develop intellectually. For more details about academic dishonesty, consult the Code of Student Rights and Responsibilities link above, where this topic is addressed.

Electronic Devices in the Classroom: Absolutely no video or audio recording in the classroom is allowed without prior written authorization from the instructor. Cell phones and other electronic devices should be in silent mode and put away during quizzes, tests, and final exams.

In case of an emergency where you need to answer a call or respond to a text, please exit the classroom before responding. You may use a computer or tablet for notes in

class, but do be sure you are not distracting classmates and that you are only doing class tasks. We will use technology for some class activities. Students who text, scroll on their phones, talk on their cell phone, or use their technology to do activities not directly related to the class will be asked to leave the classroom.

Contingency Day: In circumstances such as extreme weather, pollution, or other disasters, the governor may issue a contingency day in which we will not come to class. In this circumstance, please watch for an announcement from me about what to do. I might ask you to read the book on your own or watch prerecorded videos, and we will discuss in class the next day we are able.

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.

Math Tutoring and Academic Success Resources

Free tutoring and academic success resources offered through our **STEM Resource Center.**

Accesibility and Disability Services

SLCC values inclusive learning environments and strives to make all aspects of the College accessible to our students. If you have a disability and believe you need accommodations to improve access to learning materials or the learning environment, please contact Accessibility and Disability Services: Phone: 801-957-4659; Email: ADS@slcc.edu; ADS Website: https://www.slcc.edu/drc/Home/index.aspx

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.

Contingency Plan for Remote Workday

Under Utah legislation, the governor can now call a "Remote Workday" given certain circumstances. These remote workdays can be due to inclement weather, pollution, or natural disasters. If this happens, I will post an announcement in Canvas with instructions for any adjustments we may need to make. If we have a test scheduled on a remote learning day, the test will be postponed and I'll post instructions and information in a Canvas announcement.

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

How to Navigate to Canvas

General Education Information

QL; QS

e-portfolio and General Education at SLCC

This course fulfills the Quantitative Studies requirement for the General Education Program at Salt Lake Community College. It is designed not only to teach the information and skills required by the discipline, but also to develop vital workplace skills and to teach strategies and skills that can be used for life-long learning. General Education courses teach basic skills as well as broaden a student's knowledge of a wide range of subjects. Education is much more than the acquisition of facts; it is being able to use information in meaningful ways in order to enrich one's life.

While the subject of each course is important and useful, we become truly educated through making connections of such varied information with the different methods of organizing human experience that are practiced by different disciplines. Therefore, this course, when combined with other General Education courses, will enable you to develop broader perspectives and deeper understandings of your community and the world, as well as challenge previously held assumptions about the world and its inhabitants.

Your General Education ePortfolio tells your SLCC learning story. Your ePortfolio enables you to introduce yourself to your professors and classmates, showcase your learning, and reflect on how your courses connect to each other, your life, goals, and community. The portfolio is intended to help you connect with other students and communicate with professors about how you learn, what you are taking away from your experience, and

what supported your learning in their class. Professors can use your ePortfolio to get to know you before class and use your reflections and signature assignments to continuously improve their teaching.

Your General Education ePortfolio will also help you weave together the concepts you learn across all general education courses. To do this, each general education course you take at the college will ask you to demonstrate your engagement with the general educationlearning outcomes by designing a course-specific ePortfolio page that includes a SignatureAssignment and reflection. When you finish your time at SLCC, your ePortfolio should provide a multi-media showcase of your educational experience and tell the story of your learning growth while at SLCC. You can learn more by visiting the ePortfolio help site.

In order for us to learn from your ePortfolio and provide effective support, we must be able to access your ePortfolio.

To ensure access to your ePortfolio, please link your ePortfolio URL to your MySLCCaccount by following these directions:

1. Copy the URL in the web address bar for your Welcome page (e.g. “slcc.digication.com/john-smiths-eportfolio”)

2. Log into my.slcc.edu

3. Locate the ePortfolio card and click "Submit ePortfolio"

4. Click Submit on the left side of the page under General Education ePortfolio,

5. Paste the URL for your ePortfolio’s Welcome page into the blank box underneath EnterePortfolio URL.

6. Click Save.

7. Finally, confirm that everything worked by clicking on the link and making sure it goes to your Gen Ed ePortfolio Welcome page.

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	Final Exam	Assignment	200
	Homework 2.R: Substitution/Elimination	Assignment	0
	Introduce Yourself	Discussion	0
	Math Fun Talk 1	Assignment	10
8/25	Intro to Lumen OHM	Assignment	16
8/25	Pre-Test	Assignment	20
8/26	Homework 1.1: Graphs	Assignment	12
9/4	Homework 1.2: Functions	Assignment	18
9/4	Homework 1.3: Linear Functions	Assignment	21
9/4	Homework 1.4: Linear Equations and Modeling	Assignment	8
9/4	Module 1 Quiz	Assignment	75
9/11	Homework 2.1: Systems of Two Linear Equations	Assignment	16
9/15	Homework 2.2: Systems of Three Linear Equations	Assignment	12
9/15	Homework 2.3: Solutions to Systems of Linear Inequalities	Assignment	12
9/16	Exam 1	Assignment	100

Due Date	Assignment Name	Assignment Type	Points
9/16	Module 2 Quiz	Assignment	35
9/23	Homework 3.1: Properties of Exponents and Polynomials	Assignment	18
9/23	Homework 3.2: The Algebra of Functions	Assignment	14
9/27	Optimization Parts 1-5 Check-In	Assignment	10
9/30	Homework 3.3: Graphing Quadratic Functions in Vertex Form	Assignment	9
9/30	Homework 3.4: Graphing Quadratic Functions in Intercept Form and the Zero-Product Property	Assignment	9
9/30	Homework 3.5: Review of Factoring	Assignment	21
10/7	Homework 3.6: Graphing Quadratic Functions in General Form	Assignment	19
10/7	Homework 3.7: Factoring the Sum and Difference of Cubes and a General Approach to Factoring	Assignment	21

Due Date	Assignment Name	Assignment Type	Points
10/7	Homework 4.1: Introduction to Rational Expressions and Functions	Assignment	11
10/7	Homework 4.2: Multiplying and Dividing Rational Expressions	Assignment	6
10/7	Module 3 Quiz	Assignment	70
10/11	Optimization Full Project Parts 1-9	Assignment	30
10/14	Homework 4.3: Adding and Subtracting Rational Expressions	Assignment	13
10/14	Homework 4.4: Simplifying Complex Rational Expressions	Assignment	12
10/14	Homework 4.5: Solving Rational Equations	Assignment	13
10/14	Homework 4.6: Formulas	Assignment	10
10/20	Homework 4.7: Solving Applications Involving Rational Equations	Assignment	11
10/20	Homework 4.8: Polynomial Division	Assignment	9

Due Date	Assignment Name	Assignment Type	Points
10/20	Homework 4.9: Synthetic Division and the Remainder Theorem	Assignment	9
10/21	Exam 2	Assignment	100
10/21	Module 4 Quiz	Assignment	75
10/25	Math Fun Talk 2	Assignment	10
10/28	Homework 5.3: Multiplying Radical Expressions	Assignment	16
10/28	Homework 5.4: Dividing Radical Expressions	Assignment	10
10/28	Homework 5.5: Radical Expressions with Multiple Terms	Assignment	19
10/28	Homework 5.6: Rationalizing Denominators	Assignment	12
10/28	Homework 5.1: Radical Functions and Radical Expressions	Assignment	14
10/28	Homework 5.2: Rational Exponents	Assignment	16
11/4	Homework 5.7: Solving Radical Equations	Assignment	17

Due Date	Assignment Name	Assignment Type	Points
11/4	Homework 5.8: Distance and Midpoint Formulas, Pythagorean Theorem	Assignment	10
11/4	Homework 5.9: Imaginary and Complex Numbers	Assignment	21
11/4	Homework 6.1: Solving Quadratic Equations	Assignment	18
11/4	Module 5 Quiz	Assignment	85
11/8	Reviews Project	Assignment	40
11/11	Homework 6.2: The Quadratic Formula	Assignment	9
11/11	Homework 6.3: Solutions of Quadratic Equations	Assignment	10
11/11	Homework 6.4: Equations Quadratic in Form	Assignment	9
11/11	Homework 6.5: Problem Solving and Quadratic Functions	Assignment	10
11/12	Homework 6.6: Solving Quadratic Inequalities	Assignment	9
11/12	Homework 6.7: Circles	Assignment	8
11/13	Exam 3	Assignment	100

Due Date	Assignment Name	Assignment Type	Points
11/15	Module 6 Quiz	Assignment	70
11/22	ePortfolio Submission	Assignment	40
11/25	Homework 7.1: Composing Functions	Assignment	8
11/25	Homework 7.2: Inverse Functions	Assignment	13
11/25	Homework 7.3: Exponential Functions	Assignment	15
11/25	Homework 7.4: Logarithmic Functions	Assignment	12
11/25	Homework 7.5: Common and Natural Logarithms	Assignment	14
12/2	Homework 7.6: Solving Exponential Equations	Assignment	7
12/2	Homework 7.7: Solving Logarithmic Equations	Assignment	9
12/8	Homework 7.8: Applications of Exponential Functions	Assignment	6
12/8	Homework 7.9: Applications of Logarithmic Functions	Assignment	4
12/8	Module 7 Quiz	Assignment	75