

COURSE INFORMATION

Course Number: MATH 0310

Course Title: Intermediate Algebra

Course Description: A study of relations and functions, inequalities, algebraic expressions and equations (absolute value, polynomial, radical, rational), with a special emphasis on linear and quadratic expressions and equations.

Course Credit Hours: 3

Lecture Hours: 3

Lab Hours: 1 (included)

Placement Assessment: Placement in Math 0310. Consult the Testing Center Director if you have questions about an assessment level OR Successful completion of Mathematics 0305 or 0406.

Prerequisite: Successful completion of Math 0305 or MATH 0406, or TSI standard for MATH 0310; or equivalent.

Student Learning Outcomes:

Upon successful completion of this course, students will:

1. Define, represent, and perform operations on real and complex numbers.
2. Recognize, understand, and analyze features of a function.
3. Recognize and use algebraic (field) properties, concepts, procedures (including factoring), and algorithms to combine, transform, and evaluate absolute value, polynomial, radical, and rational expressions.
4. Identify and solve absolute value, polynomial, radical, and rational equations.
5. Identify and solve absolute value and linear inequalities.
6. Model, interpret and justify mathematical ideas and concepts using multiple representations.
7. Connect and use multiple strands of mathematics in situations and problems, as well as in the study of other disciplines.

Withdrawal Policy: “See the current *Collin Registration Guide* for the last day to withdraw.”

Collin College Academic Policies: “See the current *Collin Student Handbook*.”

Americans with Disabilities Act: Collin College will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal opportunity. It is the student’s responsibility to contact the ACCESS office, SCC-D140 or 972.881.5898 (V/TTD: 972.881.5950) to arrange for appropriate accommodations. See the current *Collin Student Handbook* for additional information.

INSTRUCTOR INFORMATION

Instructor's Name: Randy L Collins

Office Number: PRC J-157

Office Hours: Monday / Wednesday/ Friday 08:00am – 09:00am
Tuesday / Thursday 11:30am – 1:00pm

Phone Number: 972-377-1034 **In case of emergency, contact the Developmental Education Office (SCC K102) at 972-881-5720.**

Email: rlcollins@collin.edu I check my email on a regular basis; however during non business hours or weekends it could take 24-36 hours to respond to your email.

Class Information:

Section Number: BP1

Meeting Times: This is a web class. All assignments are completed online. **The only times you are required to come to the campus are when you take the 5 tests.**

Minimum Technology Requirement: Students must have basic computer skills. You also need access to a computer and a reliable internet service

	Windows	Apple
OS (Operating	XP, Vista, 7	Mac OS 10.3 and higher
Access to the	DSL, (High-speed is preferred) cable, satellite, fiber	
Web Browser	Internet Explorer 6, 7, 8; Mozilla Firefox 2	Safari 2 and higher;

Minimum Student Skills: Ability to follow the syllabus.

Netiquette Expectations: Always include your name and course number when writing emails. Please allow 24 hours for the instructor's response. You must use your CougarMail account when emailing your instructor. Emails from different accounts may not be answered.

Important Dates to Understand:

Census Date (February 1, 2016) - If you drop before the census date, you **will not** receive a "W". The course will not appear on your transcript.

Last Withdrawal Date (March 18, 2016) - If you drop after the Census Date but before the **Last Withdrawal Date**, you **will** receive a "W".

After the **Last Withdrawal Date**, you **CANNOT** drop the class. You will receive the grade you earn in the class (AD,BD,CD or FD).

Administrative Withdrawal: Participation in class is an essential requirement of this course. Maintain contact with your professor if you are not able to attend class or complete an assignment on time. **If you miss more than 20% of the assignments** of these course between the beginning of class and the college

withdrawal date, you may be administratively withdrawn from this class. Administrative withdrawal may have academic, financial, financial aid, and visa implications. It will count toward Collin's Repeat Policy and the 27-hour limitation on Developmental Education courses. Administrative withdrawal will take place after the full refund period, and if you are administratively withdrawn from the course you will not be eligible for a tuition refund. If you have questions about the administrative withdrawal policy, please contact your professor.

College Repeat Policy: Developmental courses may be taken for a combined total of no more than 27 credit hours. In addition, a student may repeat this course only once after receiving a grade, including W. If you drop this class before census day, it will not count against you.

Scholastic Dishonesty: For a full description of scholastic dishonesty see the student code of conduct in the Student Handbook. Students found responsible for scholastic dishonesty may have a grade of 0 assigned or a course grade of FD.

Course Resources: The College provides group tutoring and a Math Lab at no charge at each campus to support student success in this class. Students are required to purchase a software license for use in this class. This software has a web address of: <http://pearsonmylabandmastering.com/>.

Textbook:

The MyMathLab (MML) Integrated Course Sequence code (**ISBN # 0321757378**) is **required**. The code can be purchased online or through the bookstore. The MyMathLab (MML) Integrated Course Sequence code includes access to the eText version of Bittinger and Beecher's *Algebra Foundations: Basic Math, Introductory and Intermediate Algebra*. The code is good for the entire developmental math sequence.

There are **optional** items in the bookstore if students choose to purchase them:

- Bittinger and Beecher *Algebra Foundations: Basic Math, Introductory and Intermediate Algebra* (book with MML code) ISBN # 0133862321*
- Custom Textbook, Bittinger *Algebra Foundations, Custom for Collin College* ISBN # 1323151338l
- Custom Workbook, Bittinger *Algebra Foundations Guided Notes, Custom for Collin College* ISBN # 132316121X

*If you choose to purchase the custom textbook after purchasing the MyMathLab (MML) Integrated Course Sequence code you will be paying more than the cost of the book with MML code (ISBN # 0133862321).

Supplies: A graphing calculator is required and the TI 83, TI 83 Plus, or TI 84 is preferred. Calculators with a computer algebra system (CAS) will not be permitted on exams, unless prior approval is obtained from the instructor.

Attendance Policy: Attendance for an online class is based on submitting work.

Course Requirements: Complete the required tests, lab assignments, and final examination, and any other assignments required by the instructor.

Method of Evaluation: Only AD, BD, CD, FD or I can be awarded in this class. **A grade of DD will never be awarded.**

Note: All assignments must be completed on the MyMathLab website. The URL, instructions for enrolling, and the required course ID will be provided in a separate document.

The **Grading Scale** will be: AD: 90 – 100%; BD: 80 – 89%; CD: 70 – 79%; FD: 0 – 69%.

TESTS – There will be **4 computerized** unit tests, which count **55%** of your final grade. You must complete the tests by the due date listed on the course calendar. Each test must be taken at the Testing Center* on any of our campuses. The testing centers have the password. **You must always arrive at the testing center at least one hour before the center is scheduled to close.** You must have a student ID in order to take the tests.

***There is an option to have a test through Remote Proctor if you cannot make it to campus.**

The Testing centers are located at all campuses:

Spring Creek Campus, Plano: Room: J232 Phone: (972) 881-5922

Preston Ridge Campus, Frisco: Room F209 Phone: (972) 377-1523

Central Park Campus, McKinney: Room A109 Phone: (972) 548-6849

Testing Center Hours of Operation:

- Monday – Thursday 8:00am – 9:00pm
- Friday 8:00am – 3:00pm
- Saturday 8:00am – 5:00pm

TEST/MAKEUP POLICY: If unavoidable circumstances cause you to miss a test, the Final Exam grade will be used twice, once for the final exam grade and once to replace the missed test grade, provided you provide documentation as to the reason why you missed the test. The instructor reserves the right to deny cases where the reason is not an extreme event or insufficient documentation is submitted.

LAB EXERCISES – There are 10 “lab quizzes” required in this class. The lab quizzes and practice labs use the MyMathLab Internet-based software. **Practice labs** are available for **unlimited** practice. The graded labs are listed as lab quizzes and **only one (1) submitted attempt is allowed**. Remember to submit the lab quiz when finished. Graded labs are always due by **11:59 p.m.** of the day stated in the course calendar. **A minimum grade of 70 on the Practice Labs is required prior to taking the lab quizzes.** Please note Practice Lab quizzes are in the red mode so you will have to rework all problems if you do not get the required 70. Take notes and write down your work to help you. The grade average of the ten lab quiz assignments will count as **10%** of the final grade. **No lab grades will be dropped.**

Lab#	Practice Lab and Main Lab Sections Covered			
1	ALL REVIEW of Beginning Algebra:			
	10.2	12.4	13.8	17.3
	11.4	13.2	14.1	17.4
	11.7	13.4	14.2	
	12.3	13.5	14.5	
	Current Sections		Previous Sections	
2	12.3	16.2	13.1	14.5
	16.1	Appendix D	13.2	17.2
			13.5	
3	14.7		11.7	Appendix D
	14.8		13.5	
	18.3		14.7	
4	15.1	15.3	14.7	18.3
	15.2	15.4	16.2	
5	15.5	15.7	15.1	16.1
	15.6	15.8	15.4	18.3
6	19.1	19.3, Obj. A & B	15.3	15.6
	19.2	19.4	15.4	16.1
			15.5	
7	19.5		19.1	
	19.6		19.3 Obj. A	
	19.8		19.4	
8	20.1		19.3, Obj. B	19.8
	20.2		19.5	
	20.3		19.7	
9	20.5		15.2	20.5
	20.6		20.1	
	20.7		20.2	
10	ALL REVIEW:			
	14.8	15.7	19.2	20.6
	15.1	16.2	19.3	20.7
	15.5	18.3	19.6	Appendix D
	15.6	19.1	20.3	

HOMEWORK: The grade average of the homework assignments will count as **10%** of the final grade. There is no limit for the number of times the homework and practice labs can be done. All homework must be completed by 11:59 pm on the day they are due to receive full credit.

Late Submission of Homework: There is a late submission penalty of **15% per day from the final score**. If you choose to submit homework late you will only have 2 days from the date the assignment was due to complete the homework section. After the two days the score will be recorded as a zero.

ACTIVITIES: Class activities will count as **05%** of the final grade. This will include the Online Agreement, Syllabus Quiz, and Introduce Yourself post.

FINAL EXAM - A comprehensive departmental final exam is **REQUIRED** for all students at the end of the course (**NO EXCEPTIONS**). If the exam is not taken, a zero will be recorded. No other grade can replace the final exam. The final exam will count as **20%** of the final grade. The Final Exam will be computerized. Please note it will be done using Test Gen via MyMathLab so it will appear different from your other tests.

Delivery Method of Feedback and/or Graded Material: All grades are posted in MyMathLab.

Standards for Instructor Response and Availability: Homework grades are given immediately when the submit button is clicked on in MyMathLab. Homework assignments can be re-worked to get more practice and a higher score. Unit tests are completed at the testing center and the grades are given immediately when the tests are submitted. You can only review a unit test immediately after it is submitted. The final exam grade and the final course average grade will be posted in MyMathLab within 3 business days after the due date of the final exam. To see the final results, go to MyMathLab and click the MML-Home menu tab. Then look to the right on this page and click on the Final Exam and Final Course Average.

Notes: (1) The instructor reserves the right to make changes to this syllabus during the semester. Changes will be provided in writing during class hours.

(2) Please see: <http://www.collin.edu/collegesurvival/> for a listing of available college support resources.

Expectation: Maintaining a positive learning environment

As your instructor and as a student in this class, it is our shared responsibility to develop and maintain a positive learning environment for everyone. Your instructor takes this responsibility very seriously and will inform members of the class if their behavior makes it difficult for him/her to carry out this task. As a fellow learner, you are asked to respect the learning needs of your classmates and assist your instructor achieve this critical goal.

Creating Opportunities for Learning

As your instructor, it is my responsibility to present learning opportunities through the course syllabus, lectures, labs, in-class and out-of-class exercises and assignments. It is your responsibility to do the learning by completing the readings, by attending class and by participating in the class discussions and assessment/lab exercises.

Tracking Your Success at Learning

Your instructor will conduct quizzes, exams and assessments that you can use to determine how successful you are at achieving the course learning outcomes (mastery of course content and skills) outlined in the syllabus.

If you find you are not mastering the material and skills, you are encouraged to reflect on how you study and prepare for each class. Your instructor welcomes a dialogue on what you discover and may be able to assist you in finding resources on campus that will improve your performance.

Tentative Course Calendar:

Due dates of Homework are listed in MyMathLab.

	Math 0310 (Bittinger, 1e)	0310 Labs/Homework
Week 1 January 19 to 24	Syllabus Quiz (in MyMathLab) Due Jan 24 th Introduce Yourself Post (in MyMathLab) Due Jan 24 th 12.2 Graphing Linear Equations 12.3 More with Graphing and Intercepts 16.1 Functions and Graphs Read/Study Supplement: Relations and Table of Values (<i>Found in MyMathLab and BlackBoard</i>)	Lab 1 (Review) Due by Jan 24 th Homework Due by Jan 24th
Week 2 January 25 to 31	16.2 Finding Domain and Range Appendix D The Algebra of Functions Read/Study Supplement: Evaluate an Absolute-Value Expression (<i>Found in MyMathLab and BlackBoard</i>)	Lab 2 Due by Jan 31 st Homework Due by Jan 31st
Week 3 February 01 to 07	18.3 Absolute-Value Equations and Inequalities Test 1 Review Test 1 (Must Complete by Feb 6th)	Homework (Including Test 1 Review) Due by Feb 5th
Week 4 February 08 to 14	14.7 Factoring: A General Strategy 14.8 Solving Quadratic Equations by Factoring	Lab 3 Due by Feb 14 th Homework Due by Feb 14th

<p>Week 5 February 15 to 21</p>	<p>15.1 Multiplying and Simplifying Rational Expressions 15.2 Division and Reciprocals 15.3 Least Common Multiples and Denominators</p>	<p>Homework Due by Feb 21st</p>
<p>Week 6 February 22 to 28</p>	<p>15.4 Adding Rational Expressions 15.5 Subtracting Rational Expressions</p>	<p>Lab 4 Due by Feb 28th Homework Due by Feb 28th</p>
<p>Week 7 February 29 to March 6</p>	<p>15.6 Complex Rational Expressions 15.7 Solving Rational Equations</p>	<p>Homework Due Mar 6th</p>
<p><i>Spring Break March 7 - 13</i></p>		
<p>Week 8 March 14 to 20</p>	<p>15.8 Applications Using Rational Equations and Proportions (Objective A only) Test 2 Review Test 2 (Must Complete by Mar 19th)</p>	<p>Lab 5 Due by Mar 4th Homework (Including Test 2 Review) Due by Mar 18th</p>
<p>Week 9 March 21 to 27</p>	<p>19.1 Radical Expressions and Functions Read/Study Supplement: Determine the Domain of Radical Functions when the index is greater than 2 (Found in MyMathLab and BlackBoard) 19.2 Rational Numbers as Exponents 19.3 Simplifying Radical Expressions (Objective A) Read/Study Supplement: Using the $\sqrt{\quad}$, $\sqrt[3]{\quad}$, $\sqrt[n]{\quad}$ features to verify the simplification of a radical expression. (Found in MyMathLab and BlackBoard) 19.3 Simplifying Radical Expressions (Objective B)</p>	<p>Homework due by Mar 27th</p>
<p>Week 10 March 28 to April 03</p>	<p>19.4 Addition, Subtraction, and More Multiplication 19.5 More on Division of Radical Expressions</p>	<p>Lab 6 Due by April 3rd Homework Due by April 3rd</p>

<p>Week 11 April 04 to 10</p>	<p>19.6 Solving Radical Equations 19.8 The Complex Numbers</p>	<p>Lab 7 Due by Apr 10th</p> <p>Homework Due by April 10th</p>
<p>Week 12 April 11 to 17</p>	<p>Test 3 Review Test 3 (Must Complete by April 16th) 20.1 The Basics of Solving Quadratic Equations</p>	<p>Test 3 Review Due April 15th</p> <p>Homework 20.1 Due April 17th</p>
<p>Week 13 April 18 to 24</p>	<p>20.2 The Quadratic Formula 20.3 Applications Involving Quadratic Equations</p>	<p>Lab 8 Due by April 24th</p> <p>Homework Due April 24th</p>
<p>Week 14 April 25 to May 01</p>	<p>20.5 Graphing $f(x) = a(x - h)^2 + k$ 20.6 Graphing $f(x) = ax^2 + bx + c$</p>	<p>Homework Due by May 1st</p>
<p>Week 15 May 02 to 08</p>	<p>20.7 Mathematical Modeling with Quadratic Equations Test 4 Review Test 4 (Must Complete by May 7th) Review for final exam</p>	<p>Lab 9 Due by May 6th</p> <p>Homework Due by May 6th</p>
<p>Week 16 May 09 to 13</p>	<p>FINAL EXAM - (Must Complete by May 13th)</p>	<p>Lab 10 (Overview) Due by May 12th</p>

MATH 0310 INTERMEDIATE ALGEBRA COURSE OBJECTIVES

Textbook Reference: Algebra Foundations: Basic Math, Introductory Algebra, and Intermediate Algebra, First Edition

Marvin L. Bittinger, Judith A. Beecher, Barbara L. Johnson

Upon successful completion of this course, students will:	Section
1. Define, represent, and perform operations on real and complex numbers.	
Add, subtract, multiply, and divide complex numbers.	19.8
2. Recognize, understand, and analyze features of a function.	
Identify a relation as a function given (i) a set of points, (ii) an equation, (iii) a graph using the vertical line test, or (iv) a table of values.	16.1 (Supplement for Relation and (iv) Table of Values)
Graph a quadratic function by plotting the intercepts, the vertex, and utilizing the axis of symmetry.	20.5, 20.6
Find (i) the vertex using $\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$, (ii) the direction of the parabola, and (iii) the axis of symmetry, given a quadratic function in the form $f(x) = ax^2 + bx + c$.	20.6
Determine any maximum or minimum, given a graph of a quadratic function.	20.5, 20.6
Graph an absolute value equation.	16.1
Evaluate a function for a specified value given an equation and a graph.	16.1
Determine the domain of a function given an equation.	16.2
Determine the domain and range of a graph.	16.2
Determine the domain of a radical function from an equation and a graph.	19.1 (Supplement to build upon index > 2)
Find the sum, difference, product, and quotient of two functions, and the domain of the quotient of two functions.	Appendix D
3. Recognize and use algebraic (field) properties, concepts, procedures (including factoring), and algorithms to combine, transform, and evaluate absolute value, polynomial, radical, and rational expressions.	
Use a general strategy to factor a polynomial completely.	14.7

Reduce a rational expression to lowest terms.	15.1
Multiply and divide two rational expressions.	15.1, 15.2
Add and subtract two rational expressions.	15.3, 15.4, 15.5
Simplify a complex fraction.	15.6
Simplify a radical expression.	19.3
Evaluate a radical function.	19.1
Evaluate an absolute value expression	Supplement to Evaluate an Absolute Value Expression
Simplify an expression containing rational exponents.	19.2
Add, subtract, and multiply radical expressions.	19.3, 19.4
Divide an expression with a monomial or binomial denominator containing a radical.	19.3, 19.5
4. Identify and solve absolute value, polynomial, radical, and rational equations.	
Solve an equation containing rational expressions.	15.7
Solve an absolute value equation.	18.3
Solve a quadratic equation with integer coefficients by (i) factoring, (ii) using the square root principle, (iii) completing the square, and (iv) the quadratic formula.	14.8, 20.1, 20.2
Solve a radical equation.	19.6 Objective A
5. Identify and solve absolute value inequalities.	
Solve an absolute value inequality	18.3
6. Model, interpret and justify mathematical ideas and concepts using multiple representations.	
7. Connect and use multiple strands of mathematics in situations and problems, as well as in the study of other disciplines.	
Solve an application requiring a quadratic equation.	20.3, 20.7
Solve an application requiring a rational equation.	15.8 Objective A
Solve an application requiring a radical equation.	19.6

The student will demonstrate competency in the use of a graphing calculator by:	
Using the ROOT (ZERO) and INTERSECT features to solve an equation.	14.8 (see page 930), 19.6 (see page 1280), 20.2 (see page 1331)
Checking solutions to a linear or quadratic equation using the VARS, VALUE, STO or TABLE feature.	16.1
Identifying the maximum or minimum value of a quadratic function	20.7 (see page 1380)

using the MINIMUM or MAXIMUM feature.	
Graphing a linear function.	12.2 (see page 745), 12.3 (see page 752)
Using the $\sqrt{\quad}$, $\sqrt[3]{\quad}$, $\sqrt[n]{\quad}$ features to verify the simplification of a radical expression, when appropriate.	Calculator Supplement