Math 120 (10871)	**American River College**

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American River College
Intermediate Algebra
Spring 2017
Portables 610A, MTWTh 10:00 – 11:05 am

Instructor: John Burke
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**Web Page:** professorburke.org
Telephone: 916-484-8601
Office hours: Howard Hall 148, MW 11:30 – 1:00, T 11:30 – 12:30, TTh 4:00 – 5:00, F 12:00 – 1:00

Prerequisite: MATH 100 (*Elementary Algebra*), 104 (*Elementary Algebra, Part II*), or 132 (*Combined Algebra Part II*) with a grade of "C" or better, or placement through the assessment process.

Text and Other Materials: Intermediate Algebra: Functions & Authentic Applications, 5/e – Lehmann, Jay (ISBN 9780321927903) with access code to MyMathLab. You can get free access to MyMathLab for 14 days. The physical book is not required; alternatively, you can buy just the MyMathLab access code which, in addition to the online exercises, provides access to the e-book. Our MyMathLab course is designated: **burke88943**. A scientific calculator is required. The TI-30X IIS, TI-83+, or TI-84+ calculator or equivalent is highly recommended.
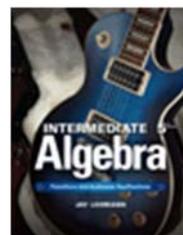
Description: This course extends and reviews the concepts of elementary algebra while incorporating applications and problem solving skills. Reviewed and extended topics include linear and quadratic equations and their graphs, linear inequalities, systems of linear equations, exponents, factoring polynomials, rational expressions, and radicals. New topics include absolute value equations and inequalities, graphs of absolute value functions, equations of parallel and perpendicular lines, graphs of linear inequalities, graphs of systems of linear inequalities, functions, function notation, domain and range, inverse functions, exponential and logarithmic functions and their graphs, quadratic and polynomial functions and their graphs, an introduction to the complex number system, finding the real and complex solutions for a variety of equations, an introduction to conic sections, and nonlinear systems of equations and their graphs.

Student Learning Outcomes: *Upon completion of this course, you will be able to:*

- graph and solve linear inequalities.
- graph systems of linear inequalities.
- solve equations and inequalities containing absolute values.
- solve and graph linear equations and systems of linear equations.
- create linear equations that pass through a given point and are parallel to a given line.
- create linear equations that pass through a given point and are perpendicular to a given line.
- simplify polynomial expressions.
- choose and apply appropriate techniques to factor a variety of polynomials.
- state whether a mathematical relation is a function and find its domain and range.
- construct the inverse of a given function.
- sketch graphs of basic exponential functions.
- utilize the properties of exponents to simplify exponential expressions and to solve exponential equations.

- sketch graphs of basic logarithmic functions.
- utilize the properties of logarithms to simplify logarithmic expressions and to solve logarithmic equations.
- simplify expressions containing radicals, using complex numbers where appropriate.
- solve quadratic equations for real and complex solutions.
- solve equations containing radicals.
- simplify rational expressions and solve rational equations for real and complex solutions.
- sketch graphs of basic conic sections.
- solve and graph systems of nonlinear equations.
- develop an appropriate equation or system of equations and use the resulting equation(s) to solve application problems.

Homework: You learn math by doing math. Working out problems is critical to learning and understanding algebra. Online homework problems (MyMathLab) will be assigned for each section covered in the course. Homework assignments will be grouped with each group's due date coinciding with one of the five semester tests. Do not get behind in doing the homework assignments; there will be no extensions of the due dates. Quizzes (see below) may have problems drawn from the online homework as well as classroom examples. The cumulative online homework will be worth 5% of your final grade.

Exams: There will be five (5) in-class tests during the semester, plus a comprehensive final exam (see schedule for dates and time). The lowest percentage score of the five semester tests will be dropped to determine the final grade. You may have one 8½ by 11 sheet of paper (both sides) of notes on any test including the final exam. All in-class exams will have room for you to show your handwritten work. No Scantron forms or blue books will be used. If you know that you will not be able to attend class on an exam day, let me know in advance and we can try to make alternate arrangements. Make-up exams will be given **only in extraordinary circumstances**. Tests will count for 30% of your final grade.

Quizzes: Quizzes will be a nearly daily occurrence and will generally cover 1 to 3 concepts. Each concept will be graded on a 0 to 4-point scale (see grading below).

Standards for Written Work: When solving problems in this course, you are expected to write clear, complete, and sufficiently detailed solutions in order to demonstrate your understanding. These solutions must communicate the reasoning and method of solving the problem. Math should never be done in ink; **always use pencil**. **Do not use ratty paper torn from a spiral notebook for the quizzes.** Treat yourself, the course, and the instructor with respect and you will do better. **Neatness does count, both subjectively and objectively in determining your grade. Partial credit will only be considered if your work is legible and organized.**

Attendance: (Read carefully!) Attendance at every class is expected and attendance will be taken. **If you have six (6) unexcused absences, you may be dropped.** However, if you decide that you need to withdraw from this class, remember that it is still **YOUR responsibility to do so.** Do not assume that you will be dropped from the class just because you have stopped attending. The last date to withdraw with a "W" is Sunday, April 16.

Grading
This course is comprised of 25-30 concepts like "Slope of a Line", "Using Substitution to Solve Systems of Equations", "Linear Inequalities", "Inverse Functions", "Factoring Polynomials", and "Solving Rational Equations". On quizzes, tests, even one-on-one office visits, I will give you problems to assess how well you understand each concept. I use the levels below to score conceptual understanding:

0. **No Basis for Assessment**. No information or only scant work provided. Usually means missed assessment.
1. **Entry Level of Understanding**. Demonstrates an initial, partial understanding. Limited answer, may include incorrect work or misunderstandings.
2. **Basic, Incomplete**. Demonstrates some understanding of main concepts. Analysis of the problem is evident with some accuracy.
3. **Competent, Adequate**. Demonstrates a decent understanding and analysis of the main concept, but some details or nuance are missing.
4. **Proficient, Accomplished**, Skillful. Demonstrates a complete and thorough understanding. Shows conceptual analysis and skills independently with high accuracy.
5. **Mastered**. Demonstrates repeated understanding by achieving Proficient (4.0) skill level *two times in a row*. **You are excused from this concept on future quizzes**, <u>but not tests</u>.

Because I will ask questions about each concept on several quizzes and tests, you'll have multiple times to raise scores on each concept. ***Only the most recent concept scores on quizzes and tests get recorded in the grade book***. Older concept scores are simply replaced. Concept level scores tend to go up over time, but it is also possible for them to go down depending upon the quality of the response. If you are unhappy with your concept score at any time, you are welcome to visit me during semester office hours to take another assessment ("concept quiz") to replace your score on that concept.

On quizzes and tests, I report concept scores on a scale of five (i.e., 0.0, 1.0, 2.0, 3.0, 4.0, and 5.0). Tests, including the final exam, are also graded on a standard percentage accuracy scale. The final exam is special. If you score higher on a concept on the final exam than your concept score going into the final, you get the new concept score for the course. If you score lower or the same on the final exam than your concept score going into the final exam, I take the average; thus, your final concept score could be 2.5, 3.5, etc. To merge overall concept average scores on the 5-level scale with percentage scores on the tests and the final, I convert concept scores to the following percentages: 0 = 0%, 1 = 61%, 2 = 71%, 3 = 81%, 4 = 91%, and 5 = 99%.

Your average score over all the concepts during the semester is worth 65% of your grade. The final exam is worth 10% of your final grade, semester tests are each worth 20% of your final grade and online homework is worth 5% of your final grade.

Grades will be determined based on total points from concepts, semester tests, online homework and the final exam. Grades of A, B, C, D and F will be given for cumulative percentage scores of 90%+, 80% - 89%, 70% - 79%, 60% - 69% and < 60%, respectively.

You will occasionally have opportunities to volunteer to work out problems or answer **directed** questions during class. Each such class participation is worth one (1) point extra credit. Extra credit can also be earned with "Oops Bucks", by being the first to point out a **significant mathematical mistake** by the instructor during class. Each "Oops Buck" is worth three (3) points.

Academic Honesty: Academic honesty is expected; cheating will not be tolerated. The giving **or** receiving of assistance during exams or quizzes or the using of an instructor's edition of the text will be considered cheating and will be immediately reported to the campus administration for disciplinary action.

How to be Successful in this Course: The general rule of thumb for this course is that you should average **at least 10 hours per week outside class** reading, studying and doing the online homework. Divide your time by first doing the online homework for the previous class and then by reading the sections that will be covered in the next class. This will prepare you to follow along in class. I realize there may be times when you cannot spend 10 hours working on the course during a particular week. Try to make up the time so you average at least 10 hours per week over the course of the semester. The course schedule (attached) details when sections will be covered and when tests will be given. In order to benefit from this information and be successful in the course, you should

(1) Prepare for and attend each class period;
(2) Read the assigned sections of the textbook;
(3) Study the examples provided;
(4) Complete the online homework exercises; and,
(5) If you encounter any difficulties, try to resolve them immediately by
    a. Taking advantage of the tutorial services located in the LRC;
    b. Forming a study group with other students in the class; and/or,
    c. Seeking help from the instructor.

Class Conduct: Come to class prepared to work with your calculator, pencil(s) and paper. While I strive for a relaxed atmosphere in class, I take the learning of mathematics seriously and you are expected to do the same. Talking at inappropriate times is both discourteous and distracting to the class. My expectation is that everyone will actively participate. I may call on you at any time to comment or answer a question. You are encouraged to ask questions and contribute to the class discussion. Arriving late to class is a distraction and discourteous to your fellow students; please be on time. Class will begin promptly. However, coming to class late is better than not coming at all. If you are unavoidably detained, please enter the classroom as unobtrusively as possible. Electronic items, such as cell phones and pagers, must be turned off or silenced before entering the classroom. Absolutely no texting in class. **If a cell phone goes off during class, the owner will be expected to bring *cookies* for the entire class at the next meeting!**

General Comments: Mathematics is a subject that demands **practice**, **practice**, and **more practice**. **You learn math by doing math.** If you spend the time and do the work suggested, you will be successful. **Mathematics is not inherently more difficult than any other subject, just different**.

To register for Math 120 Intermediate Algebra:

1. Go to www.pearsonmylabandmastering.com.
2. Under Register, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.
4. Enter your instructor's course ID: burke88943, and **Continue**.
5. Enter your existing Pearson account **username** and **password** to **Sign In**.

   You have an account if you have ever used a Pearson MyLab & Mastering product, such as MyMathLab, MyITLab, MySpanishLab, MasteringBiology or MasteringPhysics.

   ➢ If you don't have an account, select **Create** and complete the required fields.

6. Select an access option.

   ➢ Enter the access code that came with your textbook or was purchased separately from the bookstore.
   ➢ Buy access using a credit card or PayPal account.
   ➢ If available, get temporary access by selecting the link near the bottom of the page.

7. From the You're Done! page, select **Go To My Courses**.
8. On the My Courses page, select the course name **Math 120 Intermediate Algebra** to start your work.

To sign in later:

1. Go to www.pearsonmylabandmastering.com.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password,** and **Sign In**.
4. Select the course name **Math 120 Intermediate Algebra** to start your work.

To upgrade temporary access to full access:

1. Go to www.pearsonmylabandmastering.com.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password,** and **Sign In**.
4. Select **Upgrade access** for **Math 120 Intermediate Algebra.**
5. Enter an access code or buy access with a credit card or PayPal account.

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John Burke   10:00 – 11:05 am

Monday	Tuesday	Wednesday	Thursday
(1) 01/16 – MLK Day	**(2) 01/17** Intro, 1.1/1.2	**(3) 01/18** 1.3/1.4	**(4) 01/19** 1.5/1.6
(5) 01/23 2.1	**(6) 01/24** 2.2	**(7) 01/25** 2.3/2.4	**(8) 01/26** 3.1
(9) 01/30 3.2	**(10) 01/31** 3.3	**(11) 02/01** 3.4	**(12) 02/02** Catch-up/Review
(13) 02/06 – Test #1	**(14) 02/07** 3.5	**(15) 02/08** 3.6	**(16) 02/09** 11.1
(17) 02/13 – **President's Day**	**(18) 02/14** 4.1	**(19) 02/15** 4.2	**(20) 02/16** 4.3/4.4
(21) 02/20 4.4/4.5	**(22) 02/21** 5.1	**(23) 02/22** 5.2	**(24) 02/23** Catch-up/Review
(25) 02/27 – Test #2	**(26) 02/28** 5.3/5.4	**(27) 03/01** 5.4/5.5	**(28) 03/02** 5.6
(29) 03/06 5.7	**(30) 03/07** 6.1	**(31) 03/08** 6.2	**(32) 03/09** 6.3
(33) 03/13 6.4	**(34) 03/14** 6.5	**(35) 03/15** 6.6	**(36) 03/16** Catch-up/Review
(37) 03/20 – Test #3	**(38) 03/21** 6.7	**(39) 03/22** 7.1/7.2	**(40) 03/23** 7.3, 11.2
(41) 03/27 7.4	**(42) 03/28** 7.5	**(43) 03/29** 7.6	**(44) 03/30** 7.7
(45) 04/03 7.8	**(46) 04/04** 8.1/8.2	**(47) 04/05** 8.2/8.3	**(48) 04/06** Catch-up/Review
(49) 04/10 **Spring Break**	**(50) 04/11** **Spring Break**	**(51) 04/12** **Spring Break**	**(52) 04/13** **Spring Break**
(53) 04/17 – Test #4	**(54) 04/18** 8.4/8.5	**(55) 04/19** 8.5/8.6	**(56) 04/20** 8.7
(57) 04/24 9.1	**(58) 04/25** 9.2	**(59) 04/26** 9.4	**(60) 04/27** 9.5
(61) 05/01 11.3	**(62) 05/02** 11.4	**(63) 05/03** 11.5	**(64) 05/04** Catch-up/Review
(65) 05/08 – Test #5	**(66) 05/09** Review	**(67) 05/10** Review	
		Wed, 05/17 – Final Exam 10:15 – 12:15	

Note: The course schedule above is subject to change. This is only an estimate.

I acknowledge that I have read and understand the syllabus for Math 120 and agree to abide by it.

_____   _____   _____
Name (Print)   Signature   Date
[Detach lower part, sign and return by 01/23/17]