MAT 105 Syllabus Fall 2015
MW 9:00 – 10:25 am, South View 110

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Office Hours: **Mondays - Thursdays 12:00-12:50 pm and by appointment**

1. **Text/Materials Needed for Class:** Starting on the first day of class you must have…
   - A 2 or 3 inch binder with a minimum of 5 tabs labeled as "Handouts", "Workbook", "Lecture Notes", "ALEKS Notes", and "Class Work". All the handouts e-mailed to you must be included in their proper sections in this binder.
   - About 200 sheets of paper in the last tab.
   - Writing utensils, colored pens/pencils, and a 12-inch ruler.
   - A scientific calculator. Cell phones or other electronic devices will NOT be allowed to be used as calculators.
   - Download the free e-text from http://banimahd.weebly.com/resources.html.
   - Either download and print the entire workbook or purchase it in the bookstore. You must have the entire workbook in your binder starting first day of classes.
2. **Topics Covered:** See attached sheets.
3. **Objectives:** This course is intended to prepare the students to succeed in the College Algebra course MAT110. Some of the objectives for this course are listed below
   - Apply the order of operations in arithmetic and algebraic expressions.
   - Extend the properties of integer exponents to rational exponents and apply these properties in simplifying algebraic expressions.
   - Explore various linear equations, their graphs, and the interpretation of their parameters.
   - Become familiar with a variety of factorization techniques and their use in solving equations involving polynomials, rational expressions, and radicals.
   - Work in the rectangular/Cartesian coordinate system with linear and other equations.
   - Formulate simple real world applications in one or more variables and solve them algebraically and/or graphically.
   - Where appropriate, use a scientific/non-graphing calculator to explore and answer various algebraic questions.
4. **Course information:** Introduction to College Algebra (MAT105) is a four degree credit course approved throughout the University Wisconsin System. This course counts as an elective credit. Introduction to College Algebra is an accelerated math course that covers basic algebra and will be far more sophisticated than a high school algebra course. Expect to have the material covered two to three times the pace of high school. Upon successful completion of this course (C or better), students should be able to complete the subsequent course MAT110.
5. **Calculator Policy**: A calculator will be needed on some in-class written exams and quizzes, but no calculators are allowed on ALEKS assignments. On ALEKS assignments, a calculator button will show up if one is needed. No cell phone or other electronic device will be allowed to be used as a calculator. If a calculator is needed, only a scientific calculator is allowed.
6. **Important Dates**:

Day, Date	Event
Wednesday, September 2	First day of classes
Monday, September 7	Labor Day Holiday
Wednesday, September 16	Last day to drop without a "W" grade
Monday, September 28	Exam 1
Wednesday, October 14	Exam 2A
Wednesday, October 28	Exam 2B
Wednesday, November 11	Last day to drop
Monday, November 16	Exam 3
Thursday-Friday, November 26-27	Thanksgiving Break
Monday, December 14	Last day of Class
Wednesday, December 16	Final Exam (8:00 AM – 10:00 AM)

7. **Workload:** Workload estimation is based on the average student.

Item	Hours Spent
Class time (3 credits)	~3 hrs/wk (~45 hours)
Out-of-class time: **1.** Watching videos/reading text **2.** Taking notes/writing summaries on lectures/reading **3.** Doing problems from Video Logs	~5-9 hrs/wk (~75-135 hours)
Make-up exams (when needed to satisfy 100% mastery goal)	~8 hrs
Total for the Semester	**~128 – 188 hrs**

Grading Policy:

- Your grade in MAT105 will be determined by four factors: % on each of the 6 exams (written/oral), % on class participation/attendance quizzes, and % on portfolio/video logs. Each components percentage worth is listed below.
- The total % break down for your grade is as follows:

ITEM	%	Variable
Exam 1	9	A
Exam 2 part 1 + Exam 2 part 2	5+9= 14	B
Exam 3	12	C
Exam 4	10	D
Final Exam	30	F
Class participation/Activities/completeness of course binder	9	P
Attendance quizzes + review sheets + Video logs	16	V
Total	100	

Grading Scale: Standard grading scale is used where scoring above 93% is an A, 90-92% is an A- and so on. To compute your grade, the following formula will be used

Total % = 0.09(A) + 0.14(B) + 0.12(C) + 0.10(D) + 0.25(V+P) + 0.30(F)

Example: If a student earns 80% on each of exams, 75% on the final exam, 80% on the class participation/attendance quizzes, 80% on the Video logs, that student will earn a grade of a C+ computed as

$0.09(80) + 0.14(80) + 0.12(80) + .10(80) + 0.15(80 + 80) + 0.30(73) = 77.9$

Exams: All exams are spaced about 2-4 weeks apart and submission of completed review sheet the day of Exam is mandatory.

- All exams including the final exams are cumulative.
- You must score 85% or higher on all Exams in order to qualify to take the final exam.
- If you have to retake an exam after the first attempt, you need to be prepared for part of the exam to be an oral exam and you must demonstrate mastery of the material before even attempting the second try.
- This means that you may have to retake an exam multiple times.

To make sure you are able to complete MAT 105 and to increase your success rate in MAT 110 we have divided the course into 4 modules. Mastery of each module will give you confidence and success in the next module. After all 4 modules are completed you will be ready for MAT 110.

- **Class participation/Attendance Quizzes:** Points are reserved for in-class participation which requires solving problems on the board during class, paper/pencil and oral quizzes given to determine the mastery of material for a total of 9%. Questions for these quizzes are based on homework assignments/video logs, or projects, material taught in the class, and Out of class Exam practice sheets. The oral exams/quizzes are done on a one-on-one or group mode. The student/group will talk to the instructor using mathematical terminology to explain their work. No student is forced to demonstrate their mastery orally in front of the whole class.

- **Video log:** Prior to each class period, you are required to watch the video lectures, write a summary for each lecture, and answer video log questions for each lecture. You are required to bring your binder with all your work from your answers to video log questions, summaries to lectures, and any accompanying work to each class period. You need to hand cover summary sheets in person in the first 5 minutes of class. These submissions will amount to 9% of your grade. Late work will get prorated scores.
- **Grades and Review Sheets**: In order to get a passing grade for the Mat 105, you must have 85% mastery of Module 1 and Module 2 exams, 85% mastery of Module 3 exam, and 85% or higher on video logs and review sheets turned in on time prior to each Exam. You will not be allowed to take any exam unless you submit completed review sheet on the day of Exam.
- **Extra Credit %**: From time to time you instructor may choose to give you additional opportunities to earn extra credit points at his discretion.
- **Makeup Exam/Second Try Policy:** If you score under 85% on an exam, or under extenuating circumstances you need a makeup exam, one will be considered only if:
  - You have turned in 90% of the video logs on time
  - You have received 90% on your attendance quizzes at the time of the request
  - You have contacted the instructor prior to, the day of, or the day after the exam.
- In all work, especially for the attendance quiz problems, and the video logs, the handwriting should be legible to me, and the steps should be easy to follow. I also recommend using a HB/#2 pencil and an eraser. The general format should conform to the sample problems done in class, or shown in the textbook. Following such guidelines will help your math writing and thinking abilities.

8. **Colleges Assessment:** A UW Colleges-wide assessment program has been put into place to enhance the quality and effectiveness of the curriculum, programs, and services of the institution. The following areas of proficiency will be assessed because they are of primary importance in the education of our students: Analytical Skills, Quantitative Skills, Communication Skills, and the Aesthetic Engagement. The Mathematics Department has also determined a number of core proficiencies for students enrolled in mathematics classes. The skill areas of (1) solving equations, (2) setting up and solving applied problems, (3) simplifying and evaluating expressions, and (4) graphing related problems will be incorporated into the department assessment exercises this year. Results from problems in these areas will collectively be used to assess the colleges-wide proficiency "Quantitative Skills; Solve Quantitative and Mathematical Problems". For more information, please visit the website: http://www.uwc.edu/academics/assessment/
9. **COMMITMENT TO INCLUSIVE EXCELLENCE:**
   As per UWS 17 of the University of Wisconsin Colleges Student Rights & Regulations (http://www.uwc.edu/students/uwc-student-rights-regulations-booklet.pdf), no form of harassment or discrimination is allowed in this class on the basis of identity, including but not limited to race, gender, class, age, disability, religion, sexual orientation, immigration status, veteran status, gender identity, nationality, and/or ethnicity. While this class seeks to foster an environment in which ideas and beliefs can be challenged in the spirit of academic inquiry, such challenges must be respectful and civil so that all class members are welcome and empowered to participate in this learning process.
10. **Classroom Etiquette**
    Most students do not need this section. However, there have been some exceptions over the years that have disrupted class and students' understanding of the material. So please follow the following guidelines:
    - All cellular phones, beepers, and electronic devices that could disrupt class should be in silent or off while class is in session. If one is accidentally turned on or must be kept on for emergencies, please leave the classroom to respond or turn it off immediately. **No electronic devices (like iPads, cell phones, MP3-players, …) should be handled during class**. If you are caught using any of these devices during class (for e.g., texting, …), you will lose your device until the end of the semester.
    - Do not talk to a classmate during class while I am trying to explain something. This is mainly for non-math talk, but even math talk should not occur while I am talking. Other students who have paid to learn in the course may be distracted by your conversation, and at times I also can become distracted. I am also concerned that you yourself might be missing some important information at the board. At any point if you do not understand the material or have questions, don't hesitate to ask questions. Raise your hand and I can address your question.
    - I know the material is sometimes difficult and some students have trouble following what I'm doing at the board at times. Please let me know when this occurs so that I can address it. Please do not get vocally upset about it during class time. Pouting or venting is usually a healthy reaction to stress, but it is not appropriate in class and can be disruptive to other student's learning.

Tentative Schedule

Day 1 (51 min)	
Lecture 0.1	Part 1 Introduction to Authors (3 min) http://www.youtube.com/watch?v=oShZs_1U0Xk Part 2Introduction to the Content (3 min) http://www.youtube.com/watch?v=SiXM29eUw2k Part 3 Study Skills and Psychology of Learning (11 min) http://www.youtube.com/watch?v=th4cI8ugE-I Part 4 Study Skills and Psychology of Learning (8 min) http://www.youtube.com/watch?v=I5OktRxH79c Part 5 Study Skills and Psychology of Learning (10 min) http://www.youtube.com/watch?v=6WXLIf0FVIc
Lecture 1.1	Decimal Number System (13 min) https://www.youtube.com/watch?v=B6GA-o6YoLw
Day 2 (81 min)	
Lecture 1.2	Natural through Complex Numbers (13 min) http://www.youtube.com/watch?v=MH946PzUGIg
Lecture 1.3	Geometry (10 min) http://www.youtube.com/watch?v=X4v0CZzC9ec
Lecture 1.4	Part 1 One Visualization of Rational numbers (11 min) http://www.youtube.com/watch?v=79ZjO2MTiOc Part 2 Visualization of Numbers (11 min) http://www.youtube.com/watch?v=xruSTzZcpns Part 3 Visualization of Numbers (15 min) http://www.youtube.com/watch?v=Z5JYj_FQx7M Part 4 Ordering Real Numbers (8 min) http://www.youtube.com/watch?v=Wjcel8TB4mg
Lecture 1.5	Part 1 Plotting Numbers on a Number Line (13 min) https://www.youtube.com/watch?v=yRlkkBqd5gQ
Day 3 (73 min)	
Lecture 1.5	Part 2 Scientific Notation (10 min) http://www.youtube.com/watch?v=4lM8zwi0kWY
Lecture 1.6	Part 1 Exponents (9 min) http://www.youtube.com/watch?v=QlnQTDKNH_Q Part 2 Product Rule of Exponents (9 min) http://www.youtube.com/watch?v=qS2yuBEXcxk Part 3 Quotient Rule of Exponents (5 min) http://www.youtube.com/watch?v=SgEyb7s1Vcw
Lecture 1.7	Zero and Negative Exponents (14 min) http://www.youtube.com/watch?v=3_pnpRr93hA
Lecture 1.8	Part 1 Rational Exponents (13 min) http://www.youtube.com/watch?v=GJVtvQ2bm8M Part 2 Radical Notation (8 min) http://www.youtube.com/watch?v=B0zdWX3CzFE Part 3 Estimating Radicals (5 min) http://www.youtube.com/watch?v=hMWQUtQuTKI

Day 4 (87 min)	
Lecture 1.9	Part 1 Polynomials (12 min) https://www.youtube.com/watch?v=GjpAlev8o8E Part 2 Translating Words (13 min) http://www.youtube.com/watch?v=Ff-bOPs5iz4 Part 3 Translating Words (6 min) http://www.youtube.com/watch?v=xVKV_9OsNeQ
Lecture 1.10	Part 1 Introduction to Functions (11 min) http://www.youtube.com/watch?v=GHR4QiPoBi8 Part 2 Functions (5 min) http://www.youtube.com/watch?v=AORKWOJWM4A
Lecture 2.1 Addition	Part 1 Identifying Like Units (6 min) http://www.youtube.com/watch?v=Zqzb5VpogNs Part 2 Properties of Addition and Introduction to Adding Decimal Numbers (11 min) http://www.youtube.com/watch?v=b12XsziOpJA Part 3 Addition of Decimal Numbers, Polynomials, Radical Expressions, and Functions (14 min) http://www.youtube.com/watch?v=Xwwy9_-NQ0M Part 4 Introduction to Addition of Fractions and Rational Expressions (9 min) http://www.youtube.com/watch?v=y_LvHKSC10E
Day 5 (80 min)	
Lecture 2.2 Multiplication	Part 1 Properties of Multiplication (10 min) http://www.youtube.com/watch?v=5tt0WWHEJm4 Part 2 Visualizing Multiplication (13 min) http://www.youtube.com/watch?v=0ofeTiqGSFs Part 3 Adding Rational Expressions Using Multiplication (5 min) http://www.youtube.com/watch?v=xhsxrYVBFu8
Lecture 2.3 Subtraction	Part 1 Properties of Subtraction (15 min) http://www.youtube.com/watch?v=W9PEgpFyAYg Part 2 Subtraction Algorithm (9 min) http://www.youtube.com/watch?v=azaR-4ySSwQ Part 3 Visualizing Subtraction (8 min) http://www.youtube.com/watch?v=PwQGc_1p0jQ Part 4 Subtraction (12 min) http://www.youtube.com/watch?v=E7Cj8QnEmNo Part 5 Subtraction of Rational Expressions (8 min) http://www.youtube.com/watch?v=Vuvmrq54b4w
Day 6	2.3, and review for **EXAM 1**
Day 7	**Exam 1**
Day 8 (71 min)	
Lecture 2.4	Part 1 Motivation for factoring (9 min) http://www.youtube.com/watch?v=wy7pm8wjm_8 Part 2 Least Common Multiples (9 min) http://www.youtube.com/watch?v=f3ZdozzChjQ Part 3 Least Common Multiples (15 min) http://www.youtube.com/watch?v=wJCWNcytyXE Part 4 Adding Rational Expressions Using LCM (12 min) http://www.youtube.com/watch?v=O0V6hbTE-2s Part 5 Factoring Whole Numbers (8 min) http://www.youtube.com/watch?v=snMzQARfX_M Part 6 Introduction to Factoring Polynomials (13 min) http://www.youtube.com/watch?v=JR4rMAd0Mhg Part 7 Adding and Subtracting Rational Expressions Using Basic Factoring (5 min) http://www.youtube.com/watch?v=p8tMoTPFyPI

Day 9 (83 min)	
Lecture 2.5	Part 1 Factor By Grouping (6 min) http://www.youtube.com/watch?v=JPWGp83_DUE Part 2 Factor By Grouping (5 min) http://www.youtube.com/watch?v=yyMzSSw8KLQ Part 3 Factoring Trinomials Using Algebra Tiles (12 min) http://www.youtube.com/watch?v=-Xy0zEGIb54 Part 4 Factoring Trinomials Using Algebra Tiles Part 2 (10 min) http://www.youtube.com/watch?v=Ib9eeHyxwm4 Part 5 Factoring Trinomials Using Factor By Grouping (14 min) http://www.youtube.com/watch?v=hvuH6eXbXWQ Part 6 Factoring Trinomials (7 min) http://www.youtube.com/watch?v=Ja2ul4TGuH0 Part 7 Factoring Difference of Squares (9 min) http://www.youtube.com/watch?v=cy_n_YfFQlQ Part 8 Factoring Difference and Sum of Cubes (12 min) http://www.youtube.com/watch?v=2XvIb_JtvQQ Part 9 Application of Factoring (8 min) http://www.youtube.com/watch?v=fm0NEqFloMA
Day 10 (22 min)	
Lecture 2.5 & 2.6	Part 1 Visualizing Multiplication of Rational Numbers (10 min) http://www.youtube.com/watch?v=e-F4CpSXzJ4 Part 2 Multiplying Rational Numbers and Rational Expressions (12 min) http://www.youtube.com/watch?v=czoI6D3NNeg
Day 11	Review for **EXAM 2A**
Day 12	**EXAM 2A**
Day 13 (41 min)	
Lecture 2.6	Part 3 Multiplication and Exponents (15 min) http://www.youtube.com/watch?v=ExausXVXu_E Part 4 Multiplying Radicals (9 min) http://www.youtube.com/watch?v=Ab-epECGrl4 Part 5 Multiplying Radicals (9 min) http://www.youtube.com/watch?v=xSEpcZdcBHc Part 6 Rationalizing the Denominator (8 min) http://www.youtube.com/watch?v=BM7KwGKZBbs
Day 14 (66 min)	
Lecture 2.7	Part 1 Introduction to Division (13 min) http://www.youtube.com/watch?v=7gZ4yW1nr9Y Part 2 Introduction to Division of Rational Numbers (11 min) http://www.youtube.com/watch?v=9LTICGxqwKE Part 3 Division of Decimal Numbers and Rational Expressions (7 min) http://www.youtube.com/watch?v=BGReDOGObbk Part 4 Division Algorithm for Decimal Numbers and Polynomials (8 min) http://www.youtube.com/watch?v=XXr0ixy8PfA Part 5 Division Algorithm for Decimal Numbers and Polynomials (11 min) http://www.youtube.com/watch?v=PQrIt8PhFAE
Lecture 2.8	Part 1 Order of Operations (11 min) http://www.youtube.com/watch?v=iHvTbraDV38 Part 2 Complex Fractions (5 min) http://www.youtube.com/watch?v=_epR6si0ncc
Day 15	Complete Module 2, and review for **EXAM 2B**
Day 16	**EXAM 2B**

Day 17 (43 min)	
Lecture 3.1	Part 1 Introduction to Equations and Inequalities (11 min) http://www.youtube.com/watch?v=vZ2mjSUvneQ Part 2 Interval Notation (14 min) http://www.youtube.com/watch?v=P1IIz3XtJLs
Lecture 3.2	Part 1 Additive Property of Equalities and Inequalities (10 min) http://www.youtube.com/watch?v=Emlxj6Xj4w0 Part 2 Multiplicative Property of Equalities and Inequalities (8 min) http://www.youtube.com/watch?v=IUaQxG8Vn-8
Day 18 (57 min)	
Lecture 3.2	Part 3 Solving Equations and Inequalities (12 min) http://www.youtube.com/watch?v=9Ky4kZA1unE Part 4 Solving Equations (8 min) http://www.youtube.com/watch?v=kRbOrSNxKy0 Part 5 Solving Equations (11 min) http://www.youtube.com/watch?v=6oGn22clCwA Part 6 Percentage, Ratio, Proportion Problems (11 min) http://www.youtube.com/watch?v=oLoRCRXTYv4 Part 7 Direct and Inverse Variation (5 min) http://www.youtube.com/watch?v=8x0rZklxLLE
Lecture 3.3	Part 1 Zero Property (10 min) http://www.youtube.com/watch?v=5zKug2bfT48
Day 19 (16 min)	
Lecture 3.3	Part 2 Solving Equations Examples (7 min) http://www.youtube.com/watch?v=0FFGzy5Bw4s
Lecture 3.4	Radical Equations (9 min) http://www.youtube.com/watch?v=qibBpu5vixk
Day 20 (15 min)	
Lecture 3.5	Quadratic Equations (15 min) http://www.youtube.com/watch?v=vat5X-jaqU8 review for **EXAM 3**
Day 21	**EXAM 3**
Day 22 (28 min)	
Lecture 4.1	Part 1 Cartesian Coordinate System (11 min) http://www.youtube.com/watch?v=VM7BBnBKhUM Part 2 Midpoint Formula (4 min) http://www.youtube.com/watch?v=pDulmeySFcI Part 3 Pythagorean Theorem and Distance Formula (13 min) http://www.youtube.com/watch?v=oeMCqrXTEhM

Day 23 (88 min)	
Lecture 4.2	Part 1 Plotting solutions to equations in x and y (11 min) http://www.youtube.com/watch?v=MEs1zAr--bc Part 2 Graphing Equations and Inequalities in Two Variables (9 min) http://www.youtube.com/watch?v=lHCGlPoewJc Part 3 Equations of Circles (10 min) http://www.youtube.com/watch?v=fzNXmoCHRCk
Lecture 4.3	Part 1 Horizontal and Vertical Lines (6 min) http://www.youtube.com/watch?v=IamhB_5youg Part 2 Slope of Lines (13 min) http://www.youtube.com/watch?v=hbrLS3ifskQ Part 3 Equations of Lines (6 min) http://www.youtube.com/watch?v=l2TPmIzfkLo Part 4 Equations of Lines (15 min) http://www.youtube.com/watch?v=Mqh-1mGnuU0 Part 5 Summary of Equations of Lines (3 min) http://www.youtube.com/watch?v=wq8NG65DZtE Part 6 Systems of Equations and Inequalities (15 min) http://www.youtube.com/watch?v=Ek8oBqJ2E_4
Day 24 (83 min)	
Lecture 4.4	Part 1 Reading Graphs (7 min) http://www.youtube.com/watch?v=plhuVnNFYxc Part 2 Linear Models (15 min) http://www.youtube.com/watch?v=8DXMehKa6_w Part 3 Applications (8 min) http://www.youtube.com/watch?v=idPmgnUD-X0
Lecture 4.5	Part 1 Applications (14 min) http://www.youtube.com/watch?v=WXLZKrZUnKQ Part 2 Applications (7 min) http://www.youtube.com/watch?v=dsbrQ54So38 Part 3 Applications (11 min) http://www.youtube.com/watch?v=CZQu8Q3maEk
Lecture 4.6	Part 1 Rate Problems (11 min) http://www.youtube.com/watch?v=prwMJFjTD24
Lecture 4.7	Part 1 Applications (10 min) http://www.youtube.com/watch?v=ys0RRfBJ7HU