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*To be certified as attending, a student must complete the assignments posted in the Start Here section of eCampus BEFORE the 12th day of class.*

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Math/Science Learning Center
Location: P330
Telephone: 972-273-3500

Division Office Hours
Monday - Thursday: 8:00 am - 6:00 pm
Friday: 8:00 am - 4:30 pm

This course syllabus is intended as a set of guidelines for MATH 1314. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within the prevailing conditions affecting this course.

Instructor Information
Instructor’s Name: Yan Avram/Shirley Thompson
Email Address: yavram@dcccd.edu
Office Phone Number: 972-860-3926
Office Location: A-320
Office Hours: See e-campus for details

Course Information (Department Syllabus)
Course title: College Algebra
Course number: MATH 1314
Section number: 71442/91422
Credit hours: 3

District Course Description:
This course is an in-depth study and applications of polynomial, rational, radical, exponential, logarithmic, absolute-values and piecewise-defined functions, and systems of equations using matrices. Also covered are the graphing calculator, non-linear inequalities, sequences and series, circles, the Binomial Theorem and a review of the classification of the real number systems.
ACGM description: In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included.

Course prerequisites: DMAT-0093 or DMAT-0310 (Intermediate Algebra) or equivalent with an A, B, or C, or an appropriate score on a mathematics placement test.

DCCCD Distance Education Courses: This course is presented through a web-based interactive, multimedia format using MyLabsPlus and can be completed on either a PC or MAC computer. Students use Internet access to participate in classroom studies and to ask questions. There is not a particular time of the day when the class meets. One of the advantages of taking a course in this medium is the flexibility of when students choose to complete the work. For those students who live close to North Lake College, the Math/Science Center is available six days a week for extra one-on-one help with homework.

Required Textbook and Materials

1) College Algebra MLP Package for North Lake College
   Package includes
   • Access to MyLabsPlus and
   • College Algebra Text, 5th ed, by Beecher & Penna (3-hole paper copy)
   • Video Notebook pages


   • Note: MyLabsPlus access code is NOT the same as the MyMathLab access code.
     The MyLabsPlus is accessed with the MyMathLab – Plus access code.
     • Student ID number and email address listed in eConnect will be uploaded into the MyLabsPlus software to provide the student access to the course materials. You can modify your email address and password once you have logged into the software the first time. If you have questions or concerns contact the math division office at 7mathofc@dcccd.edu

2) Calculators
   You will be allowed to use calculators on all tests. Graphing calculators (such as the TI-83 or TI-84 Plus) are recommended. Calculators such as the TI 89 & TI 92, which perform algebraic operations, are not allowed. You may check out a TI-84 calculator for the midterm and final at North Lake College. Please verify the calculator policy for other campuses by calling the appropriate testing center.

3) Headphones – very beneficial to have if you are on campus and working in MLP.

Technical Support for eCampus and MyLabsPlus
   • MyLabsPlus support website: http://www.mylabsplus.com/support
     A link to this site is available in your course on eCampus.
Technical support number for eCampus: 972-669-6402
Technical support number for MyLabsPlus: 1-888-883-1299

Course Objectives
To develop a further understanding of the process of learning mathematics, the factors which can interfere with learning, and to continue to build the algebraic skills necessary for future courses or for utilization in a career or other endeavor.

The objective of the mathematics component of the core curriculum is to develop a quantitatively literate college graduate. Every college graduate should be able to apply basic mathematical tools in the solution of real-world problems.

Course Outline
Please see Appendix i attached to this syllabus for a detailed course outline.

Evaluation Procedures
The course learning outcomes will be assessed through Group Work (projects), Homework, Daily work (includes mastery tests, SLO activities, quizzes and other activities), Quizzes and Exams. The final grade will be based on the following:

Computing Your Grade:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Chapter tests</td>
<td>30%</td>
</tr>
<tr>
<td>Daily work</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

FORMULA:

Daily Work Average*0.15 + (Total of 4 Written Chapter Tests/4 *0.30 + Midterm*0.30 + Final Exam * 0.25 = Course Grade

See eCampus under “Course Info and Grading” for a sample calculation.

The Gradebook listed under "Tools" on eCampus will show you your exam grades and the class average for that exam. Averages are interpreted as follows:

Grading Scale
Your course grade will be determined by the final grade average based on the following:
A = 90 – 100   B = 80 – 89   C = 70 – 79   D = 67 – 69   F = 0 – 66

Homework
Homework is the most important learning tool in a course.

- It reinforces instruction.
- It provides an immediate and personal measure of your competence in the course.
- Homework will be assigned for each objective from MyLabsPlus.
- **All work must be written neatly on paper and the answer submitted online.**
- You must earn at least a 75% on each homework assignment before moving onto the next objective. Students that continue to work and earn 90 – 100% on the homework statistically do better on the written tests.
- Students will be required to include certain homework problems with each written chapter test.
- The homework must be organized in the following manner:
  1. Put the chapter, section, and objective at the top of EVERY PAGE, not just the page where the section begins.
  2. Start new sections on a new page or highlight the start point with a marker.
  3. Express the answer to stated problems (word problems) in a sentence which identifies what you have determined to be the answer.
     - An important part of mathematical literacy is good communication skills.
     - First: write the problem or the essential facts
     - Second: present mathematical sentences showing the progression of your ideas and
     - Third: present a conclusion.

More details about what is expected on homework assignments can be found in the appendix.

Go to the eCampus classroom for the following documents:
1) Guidelines for Homework Assignments and All Tests and
2) Chapter Summary

### Time Requirements:
- You can expect to spend a **minimum of 12 hours per week** on this class.
- The 12 hours = 3 hours of “class time” (reviewing eText videos & filling in [video note book pages]) + at least 9 additional hours working on homework assignments and projects.
- **Often online courses take even more time to work through the material.**
- **If you cannot donate this amount of time to math homework, your success will be diminished.**

### Project/Learning Activities
- The Projest/Learning Activites are posted on e-campus that you will also need to complete in addition to the MyLabsPlus assignment.

### Tests
**Types of tests:** Mastery tests and written chapter tests.
- **Mastery Tests:**
  - Mastery tests will be taken using MyLabsPlus.
The mastery test will help determine your readiness to take the written chapter test.

Mastery test criteria:
1) If your score is \( \geq 75\% \), you will be able to take the written chapter test.
2) If your score is below a \( 75\% \), you will need to discuss with your instructor the best course of action to help you be more successful in learning the material.
   Do not retake the mastery test until you contact your instructor.

Written Chapter Tests:
- All written chapter tests have been uploaded into the eCampus classroom. There are **four** written chapter tests.
- After you have completed all of the objectives with corresponding homework (minimum score of 75% on each assignment) and discussed the mastery test with your instructor, you are ready for the written chapter test.
- **The password will be released to you in an assignment found in MLP.**
- Once you have the password,
  1. Go into the eCampus classroom and click on the appropriate unit.
  2. Print the exam and complete the test according to the “Guidelines for Homework Assignments and Tests”. **To earn full credit you MUST use proper notation.**
  3. See eCampus for rules on how to submit your test for grading.
- You have 48 hours to email or mail in the exam after the password has been given. An exam cover sheet must also be included with the test (the cover sheet is also available on eCampus). For email the test, I will only accept one PDF for each test.
- Any tests that have been email or mailed/submitted after the deadline will be considered late and will count as a retake.
- **A maximum of ONE test may be taken PER WEEK.**
- **You will not be allowed under any circumstances to complete several written chapter tests within a short period of time especially at the end of the semester so plan your schedule accordingly.**
- Retests are available on all exams except the final. You are allowed only one retest per exam.
- The maximum grade for re-tests will be a **75%**.
- All written chapter tests will be graded according to the Guidelines for Homework Assignments and All Tests (see Appendix). **Proper notation REQUIRED.**
- You are required to use proper algebraic techniques on each test. Improper algebraic steps may result in a loss of all or partial points.
- Answers only will receive little, if any credit.

Special note on written tests:
- All written chapter tests will be based on homework problems that are assigned throughout the semester.
- All chapter tests will test your understanding of the course concepts that are covered throughout the semester and through various forms of questioning and application problems. **This means the exams are not identical to problems you have worked but designed to test your understanding of the concepts presented.**
Proctored Tests – Midterm and Final Exam

- You must contact the instructor via email at least two weeks before you are ready to take either the midterm or final exam so that it can be sent to the appropriate test center. Exams are only sent out on Tuesdays.
- The midterm exam is comprehensive and will be given after the Chapter 3 test.
- The final exam is comprehensive i.e. it covers the entire course. It will be given after the Chapter 8 Mastery test is completed.
- For the final exam, students must adhere to the test schedule given in the course calendar. A student may take the final exam early ~ contact your instructor.

You may not take the final exam until all written chapter tests have been taken, received AND graded by the instructor.

- The midterm and the final must be taken at a DCCCD college or in a supervised testing situation at a testing site mutually agreed upon. Students must notify the instructor as to which college is best for testing by filling out the student profile form.
- Students who live out of the Dallas area may arrange for a proctor using the proctor nomination form in the Dallas TeleCollege. No proctored tests will be sent to a location in Dallas County other than a DCCCD campus test center unless accommodation is being made through Disability Services. There is a link to the proctor nomination form in the "External Links" area of the eCampus classroom.

Extra Credit

There is an extra credit test/quiz in eCampus under "Assignments”. It covers information contained in the Syllabus and on the First Day Handout. It should be taken within the first week of class after you have read ALL the information contained in both documents. Any extra credit earned during the semester will count in the written chapter test point total and be included in that portion of the grade unless specifically noted otherwise.

You will not be allowed under any circumstances to take more than 1 test during the last week of the semester.

Taking Tests in the Testing Center (A 425)

- Important: Government- or school-issued photo identification is required & enforced.
- You may not bring personal items into the Test Center. This includes bags, cell phones and pagers. Coin-reimbursable (quarter) lockers are available for student use. Please do not share lockers.
- Please show courteous and cooperative behavior while using the services provided by the Testing Center.
- Do not bring children to the testing center. You must make arrangements for the care of your children prior to your exam date. The police department will be notified of any unattended children.
• **Do not** take any testing materials with you when you leave the Testing Center. This includes the test, answers, charts, scratch paper. These items will be attached to your test.

• **Academic Dishonesty**
  The Dallas County Community District has established procedures and guidelines to protect the security and integrity of all exams. All incidents of academic dishonesty are documented and reported to the instructor, the Director of Testing and the Dean of Student Enrollment.

• **Hours of Operation:**
  - *Monday – Thursday:* 8:30 a.m. – 8:00 p.m.
  - *Friday - Saturday:* 8:30 a.m. – 3:30 p.m.
  - *Sunday:* CLOSED

  No tests will be issued after 7:00 p.m. Other cut-off times may be in effect for specific exams by the instructor's direction. All exams collected at 8:00 p.m.

  Other cut-off times may be in effect for specific exams by the instructor's direction. No tests will be issued after 2:30 p.m. All exams collected at 3:30 p.m.

• If your instructor requires you to complete an exam in the Testing Center, be sure to have the following information when you request your test:
  0) Instructor’s name
  1) Subject and course number…*
* MATH 1314 INET or online
  2) Exam – midterm or final exam
  3) Exam deadline (Get this information from your instructor. The testing staff cannot “look up” this information on computers.)

• You should also bring the following supplies:
  1) Pencil & Eraser
  2) Only battery operated 4 function, non-programmable scientific or TI83/TI84 calculators are allowed (if permitted by instructor).

• **Questions?** Please visit the Testing Center (A425) or call 972-273-3160.

**End of Course Grade Options**

1. **Student receives an A, B, or C average.**
   Receiving an A, B or C grade is considered successful completion of the College Algebra course.

2. **Student receives a W.**
   Students who decide that they will be unable to complete the course and withdraw on or before the drop date will receive a W. Students repeating the course in a subsequent semester will have to pay tuition again and may have to purchase a new set of materials to obtain the required software license (MyLabsPlus code is good for one year if used with the same text).

3. **Student receives an Incomplete (I).**
• A student who has completed all work but the last unit test and final exam successfully in accordance with the Course Calendar AND HAS MEDICAL ISSUES OR OTHER EXTREME CIRCUMSTANCES may be eligible for an Incomplete grade.
• Only students who have worked consistently and regularly throughout the semester may qualify for an Incomplete.
• The student needs to make individual arrangements with the instructor for plans to finish the course.
• A contract for the Incomplete must be included with the instructor's final grades.
• Incomplete contracts must be approved by the last week of the term and may be accepted via email.
• The contract includes a deadline for completion, agreed upon work to be finished and a grade alternative if the contract is not fulfilled.
• The student does not have to re-enroll in the course, nor buy new materials.

4. **Student receives a WX grade.**
• Allows the student to re-enroll in MATH 1314 INET (online) and begin with chapter four.
• All work for chapters one through three will be saved and transferred to the new MATH 1314 class.
• A student who has been attending class regularly (as determined by regular weekly activity in the software) and taking tests regularly (not all bunched together) may be eligible for a WX grade if the first three tests and the midterm are completed with a 70% average or better.
• Students who receive a WX grade must sign a contract that states what assignments are to be finished and must agree to sign up for the same online course the next semester to complete the course work.
• The contract must be approved by the last week of the term and submitted with the final grades. Student’s acceptance of the contract may be completed by email.
• The student will have to pay for the course tuition again but will not have to purchase a new code (providing the next semester ends within the one year time frame allowed by the program).
• The WX grade will only be considered and discussed on an individual basis.

5. **Student receives a D or an F.**
Students who do not drop the course must be given a completion grade. Those that do not qualify for one of the options listed above will be given the Course Grade they have earned as determined by the course average process listed in the previous section.

*The instructor will use the same grading policy for all students.

**Discipline/ Course/ Department/Policies**

**Sending Emails**

Be sure to put "MATH 1314-section, Last Name" in the subject line for all emails you send. There are several internet classes going on at the same time. By doing this you will be saving yourself and the instructor a lot of time. Also, please include your first and last name in the message of the email.
Attendance
Attendance is an important part of your success. Attendance will be marked each week by recording the time spent in the instructional classroom. Additional time off line, doing assigned homework and taking exams is also expected.

Math Learning Center
The Math Learning Center (C211) provides generalized instructional services for students enrolled in North Lake MATH and DMAT courses. Students must show a North Lake College I.D. These include:
- **FREE tutoring** in all math courses taught at North Lake College;
- Computers that may be used by students enrolled in courses that have an Internet component such as homework systems (MyLabsPlus, ConnectMath). This lab is restricted to students working on MATH or DMAT courses;
- Graphing calculators and textbooks that are available for use in center;
- Graph Stamps so students can make their own graph paper; and
- A quiet area to study.

**Hours:** Mon-Thurs 8:00am – 9:00pm; Fri-Sat 9:00am – 2:00pm; CLOSED on Sunday

Math Success Center
The Math Success Center (C207) provides intensive assistance to students enrolled in developmental (credit or CE) mathematics courses or College Algebra (Math 1314) at North Lake College. Students must show a North Lake College I.D.:
- This Center provided and promotes activities that are connected with success in mathematics.
- Students can make up class absences.
- They can learn how to study math and manage their time;
- Receive specialized tutoring from seasoned faculty;
- Learn how math relates to their lives; and
- Experience the benefits of working with a study group.

**Hours:** Mon-Thurs 9:30am – 7:00pm; Fri-Sat 9:00am – 2:00pm; CLOSED on Sunday

Institutional Policies

**Financial Aid Certification of Attendance**
You must attend and participate in your on-campus or online course(s) in order to receive federal financial aid. Your instructor is required by law to validate your attendance in your on-campus or online course in order for you to receive financial aid. You
must participate in an academic related activity pertaining to the course such as but not limited to the following examples:

- initiating contact with your instructor to ask a question about the academic subject studied in the course;
- submitting an academic assignment;
- taking an exam;
- completing an interactive tutorial;
- participating in computer-assisted instruction;
- attending a study group that is assigned by the instructor;
- or participating in an online discussion about academic matters relating to the course.

In an online class, simply logging in is not sufficient by itself to demonstrate academic attendance. You must demonstrate that you are participating in your online class and are engaged in an academically related activity such as in the examples described above.

For Math 1314 INET courses:
**To be certified as attending**, a student must complete the assignments posted in the Start Here section of eCampus **BEFORE** the 12th day of class.

**Academic Dishonesty**
The Student Code of Conduct prohibits academic dishonesty and prescribes penalties for violations. According to this code, which is printed in the college catalog, "academic dishonesty", includes (but is not limited to) cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion".

1) The Vice-President of Academic & Student Affairs may initiate disciplinary proceedings against a student accused of academic dishonesty.
2) Academic dishonesty includes, but is not limited to, cheating on a test, plagiarism and collusion.
3) Cheating on a test includes:
   a) Copying from another student’s test paper;
   b) Using, during a test, materials not authorized by the person giving the test;
   c) Collaborating with another student during a test without permission to do so;
   d) Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of an un-administered test.
   e) Substituting for another student, or permitting another student to substitute for you to take a test; and
   f) Bribery another person to obtain an unadministered test or information about an unadministered test.
4) “Plagiarism” means the appropriation of another’s work (ideas and/or words) and the unacknowledged incorporation of that work in one’s written work offered for credit. Quotes not identified as quotes constitute a form of plagiarism even if the borrowed ideas are documented.
5) “Collusion” means an unauthorized collaboration with another person in preparing written work offered for credit.
**PENALTY for Academic Dishonesty** Academic dishonesty may result in the following sanctions, including, but not limited to:
1. A grade of zero or a lowered grade on the assignment or course.
2. A reprimand.
3. Suspension from the college.

**Notifications of Absence Due to Religious Holy Day(s)**
Students who will be absent from class for the observance of a religious holiday must notify the instructor in advance. Please refer to the Student Obligations section of the college catalog for more explanation. You are required to complete any assignments or take any examinations missed as a result of the absence within the time frame specified by your instructor.

**Requirements of the American with Disabilities Act (A430)**
North Lake College provides academic accommodations to students with disabilities, as defined under ADA law. It is the student's choice and responsibility to initiate any request for accommodations. If you are a student with a disability who requires such ADA accommodations, please contact North Lake College's Disability Services Office in person (A430) or by phone at 972-273-3165. [http://www.northlakecollege.edu/resources/disability.html](http://www.northlakecollege.edu/resources/disability.html)

**Administrative Withdrawal**
Students with valid extenuating circumstances may be eligible for an administrative withdrawal by the Dean of the Division in which the course or courses are taught. An administrative withdrawal will not be awarded to students who simply fail to withdraw prior to the last day to receive a “W.” The request for an administrative withdrawal must be made in writing to the Dean of the Division with any supporting documentation attached. This must occur before the last official day of the semester.

**Drop Policy**
If you are unable to complete this course, you must officially withdraw by **Friday, Feb 12th, 2016**. Withdrawing is a formal procedure which you must initiate; your instructor cannot do it for you. All Dallas County Community Colleges charge a higher tuition rate to students registering, the third time for a course. This rule applies to the majority of credit and Continuing Education / Workforce Training courses. Developmental Studies and some other courses are not charged a higher tuition rate. Third attempts include courses taken at any DCCCD college since the fall 2002 semester. For further information, go online to: [http://www.DCCCD.edu/thirdcourseattempt](http://www.DCCCD.edu/thirdcourseattempt).

**STOP BEFORE YOU DROP - Do NOT drop until you speak with your instructor.**
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community
Financial Aid Statement
Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate are also subject to this policy.

To apply for financial aid in the DCCCD, students must complete FAFSA (Free Application for Federal Student Aid) on the web at: http://www.fafsa.ed.gov

Counseling Services (A430)
Counseling services for personal issues are provided to all students currently enrolled at North Lake College. These services are provided by licensed professionals who are bound by confidentiality (within ethical parameters) at no charge. With the assistance of a counselor, students are able to identify, understand, resolve issues and develop appropriate skills. To make an appointment call 972-273-3333 or visit A 430.

The Academic Skills Center (A332)
The Academic Skills Center (ASC) is designed to provide assistance to students in the following areas:

- Labs for students enrolled in foreign language, Developmental Reading, and ESOL courses. One-on-one tutoring is available.
- The Writing Center can help students clarify writing tasks, understand instructors’ requirements, develop and organize papers, explore revision options, detect grammar and punctuation errors, and properly use and document sources. Rather than merely editing or "fixing" papers, tutors focus on helping students develop and improve their writing skills.
- The Online Writing Lab (OWL) allows students to submit papers to our writing tutors electronically and get feedback within 24-72 hours. The OWL can be accessed through eCampus. After logging on to eCampus, click on the Community Tab at the top. Type “Owl” in the search field and click “Go.” Next, click on the double drop-down arrows next to “NLC-OWL2,” and then click on “Enroll.” Once enrolled, students can receive services from the OWL.

For more information or to schedule a tutoring appointment, come by A-332 or call 972-273-3089.

TSI Information
TSI (Texas Success Initiative) is the state required assessment program that has replaced TASP. The purpose of TSI is to insure students have the skills to be ready for college level coursework. Dallas County Community College District is allowing students to decide when they will take their developmental coursework. Demonstrated proficiency in skills through completion of DMAT 0093 or a passing score on an assessment instrument is required to move to college level math classes. Students must earn an “A”, “B”, or “C” in their developmental class in order to move to the next developmental level or to a college level class.
Effective for Fall Semester 2005, the Dallas County Community Colleges will charge a higher tuition rate to students registering the third or subsequent time for a course. All third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in higher tuition to be charged. Developmental Studies and some other courses will not be charged a higher tuition rate. Third attempts include courses taken at any of the Dallas County Community Colleges since the Fall 2002 semester.

Enrollment in developmental courses is subject to other limitations. Students may enroll in a maximum of 27 hours of developmental courses.

For more information go to the DCCCD web site and click on “Paying for College” and then “Third Course Attempt.”

TSI completion of all areas (reading, math, and writing) is required before being awarded a degree. Based on the first testing score, some students may need to re-test in order to complete TSI requirements.

**Food and Drink in the Classroom**
The college policy restricts food and drink in the classroom.

**APPENDIX**

Go to the eCampus classroom for the following documents:
1) Guidelines for Homework Assignments and All Tests – printer friendly version
2) Chapter Summary – printer friendly version
3) Course calendar – printer friendly version posted

Go to next page
Appendix I
Course Objectives

Detailed list of course objectives covered in this course.

Fall 2015 SLO information  (SLOs match State ACGM Learning Outcomes)
Slo1: Domain and Range of a Square Root Function (Sec. 1.2; activity available in eCampus)
Slo2: Evaluate roots of a polynomial function (Sec. 4.1; LO #4)
Slo3: Applying graphing techniques (Sec. 4.2; activity available in eCampus; see p. 246 textbook)
Slo4: Solve an exponential function (Sec. 5.2)
Slo5: Solve a system of equations using matrices (Sec. 6.2 and 6.3)

SLO group/individual activities (eCampus)  Posted SLO Quizzes in MLP similar to these problems
1. Activity corresponding to SLO 1  SLO1 see p. 30 #81 & 82
2. Activity corresponding to SLO 3  SLO1 see p. 236 #27

SLO2 see p. 247 #9 & 11
SLO3 see p. 247 #9 & 11
SLO4 see p. 331 #63 (Green diploma problem)
SLO5 see p. 416 #27 (Solve using rref in calculator)

KEY: Items in green are suggested instructional aids – INET students should review these items on their own or use the discussion board to interact with other students.

Chapter 1:  Graphs, Functions, and Models – section 1.1 and 1.2 only

Most of section 1.1 and 1.2 can be learned using the Circle Activity & Slo 1 activity – found in eCampus

Section 1.1:  Introduction to Graphing:  Examples 4 - 11
• Find the distance between two points in the plane
• Find the midpoint of a segment
• Find an equation of a circle with a given center and radius
• Given an equation of a circle in standard form, find the center and the radius
• Graph equations of circles: in class or individual activity available in eCampus
• Stress that the exponents on the variables indicate the type of graph.

Section 1.2:  Functions and Graphs Ex. 1, 3 - 10
SLO 1 – posted SLO quiz similar to #81 & 82 on p. 30
• Determine whether a correspondence or a relation is a function
• Find function values using a formula or a graph
• Graph functions
• Determine whether a graph is that of a function
• Find the domain and the range of a function  SLO 1 activity – either class activity or assignment
• Use p. 30 #66 for an example in class (open and closed endpoints)
• See page 134 Library of functions; note carefully the domain and range of these functions

Focus on linear, absolute value, quadratic, square root, cube root, and rational.
Stress that the exponents on the variables indicate the type of graph.
• Solve applied problems using functions
# Chapter 2: More on Functions

## Section 2.1: Increasing, Decreasing, and Piecewise Functions; Applications
- Graph functions, looking for intervals on which the function is increasing, decreasing, or constant, and estimate relative maxima and minima
- Given an application, find a function that models the application. Find the domain of the function and function values
- Graph functions defined piecewise

**Learning Activity: Water Bill Project – optional – check with instructor**

## Section 2.2: The Algebra of Functions
- Find the sum, the difference, the product, and the quotient of two functions, and determine the domains of the resulting functions
- Find the difference quotient for a function
  - *Focus on linear and quadratic functions*

## Section 2.3: The Composition of Functions
- Find the composition of two functions and the domain of the composition
- Decompose a function as a composition of two functions

## Section 2.4: Symmetry
- Determine whether a graph is symmetric with respect to the x-axis, y-axis, and the origin
- Determine whether a function is even, odd, or neither even nor odd

## Section 2.5: Transformations
- Given the graph of a function, graph its transformation under translations and reflections - include shrinking and stretching

(Omit section 2.6)

# Chapter 3: Quadratic Functions and Equations; Inequalities

## Section 3.1: The Complex Numbers
- Perform computations involving complex numbers
  - *Powers of i greater than the fourth power will be covered in PreCalculus.*

## Section 3.2: Quadratic Equations, Functions, Zeros, and Models
- Find zeros of quadratic functions and solve quadratic equations by using the principle of zero products, by using the principle of square roots, and by using the quadratic formula
  - *Focus on Connecting the Concepts on page 185 and emphasize example 6 (imaginary zeros i.e. no real x-intercepts).*
- Solve applied problems using quadratic equations

*Suggestion: Omit completing of the square / will cover in pre-calculus*

## Section 3.3: Analyzing Graphs of Quadratic Functions
- Find the vertex, the axis of symmetry, and the maximum or minimum value of a quadratic function using the short cut method of determining the vertex: \( h = -\frac{b}{2a} \)
- Graph quadratic functions
- Solve applied problems involving maximum and minimum function values
- **Activity possibly in class:** “Visualizing the Graph” on page 198. Emphasize on the shape of the graph can be determined by analyzing the equation

## Section 3.4: Solving Rational Equations and Radical Equations
- Solve rational equations
- Solve radical equations  
  *Focus on equations with one radical.*

Section 3.5: Solving Equations and Inequalities with Absolute Value  
Ex. 1 - 4  
*Note: Sec 1.6 Solving Linear Inequalities were not covered - will need Just in Time review*

- Solve equations with absolute value
- Solve inequalities with absolute value

---

**Chapter 4: Polynomial Functions and Rational Functions**

Section 4.1: Polynomial Functions and Models  
Ex. 1 – 3, 5, 6  
SLO 2 – posted SLO quiz similar to #27 p. 236

- Determine the behavior of the graph of a polynomial function using the leading-term test
- Factor polynomial functions and find their zeros and their multiplicities
- Solve applied problems using polynomial models

Section 4.2: Graphing Polynomial Functions  
Ex. 1 - 3  
SLO 3 – posted SLO quiz similar to #9 & 11 p. 247

- Graph polynomial functions
- SLO 3 activity – see eCampus and page 246

Section 4.3: Polynomial Division; The Remainder Theorem and the Factor Theorem  
Ex. 1, 2, 4, 6

- Use synthetic division to divide a polynomial by x-c
- Use the Remainder Theorem to find a function value f(c)
- Use the Factor Theorem to determine whether x-c is a factor of f(x)

*Discuss “Connecting the Concepts” on page 253.*

Section 4.4: Theorems about Zeros of Polynomial Functions  
Ex. 1 - 3, 5

- Find a polynomial with specified zeros
- For a polynomial function with integer coefficients, find the rational zeros and the other zeros, if possible

*Possible class activity or discussion: p 266 #99 – explore use of the many concepts presented so far*

Section 4.5: Rational Functions  
Ex. 1 – 6, 8, 11

- For a rational function, find the domain and graph the function, identifying horizontal and vertical the asymptotes

*Note: Using the MyLabsPlus gives the students a lot of visual cues and many have difficulty with graphing on the written tests. Try covering the MLP multiple choice options with a sticky note!*

- Solve applied problems involving rational functions
- See # 8 p 281 possible group discussion

Section 4.6: Polynomial Inequalities and Rational Inequalities  
Ex. 1 – 3, 5

- Solve polynomial inequalities
- Solve rational inequalities

*Stress both the algebraic approach and visual (graphical) approach.  Students should state critical values on the test but can use graph to determine interval solutions.*

---

**Chapter 5: Exponential Functions and Logarithmic Functions**

Section 5.1: Inverse Functions  
Ex. 1, 2, 5, 6, 8, 9

- Determine whether a function is one-to-one, and if it is, find a formula for its inverse

*For determining if a function is one-to-one, focus on the horizontal line test and composition of two functions.  Omit proof concept.*

- Simplify expressions of the type \((f \circ f^{-1})(x)\) and \((f^{-1} \circ f)(x)\)

Section 5.2: Exponential Functions and Graphs  
Ex. 1 – 4, 6, 7  
SLO 4 – posted quiz similar to #63 p. 331 – possible Green Diploma problem – contact instructor

- Graph exponential equations and exponential functions
• Solve applied problems involving exponential functions and their graphs

  Applications are stressed.

Section 5.3: Logarithmic Functions and Graphs  Ex. 1 – 4, 7, 9, 10
• Find common logarithms and natural logarithms with and without a calculator
• Convert between exponential equations and logarithmic equations
• Change logarithmic bases
• Graph logarithmic functions
• Solve applied problems involving logarithmic functions

Possible example questions to present: p. 346 # 96, 97, 98 and/or 99

Section 5.4: Properties of Logarithmic Functions  Ex. 1 – 4, 6 – 8, 10
• Convert from logarithms of products, powers, and quotients to expressions in terms of individual logarithms, and conversely
• Simplify expressions of the type \( \log_a a^x \) and \( a^{\log_a x} \)

Section 5.5: Solving Exponential Equations and Logarithmic Equations  Ex. 1 - 9
• Solve exponential equations
• Solve logarithmic equations

Section 5.6: Applications and Models: Growth and Decay; Compound Interest  Ex. 1, 2, 4, 5
• Solve applied problems involving exponential growth and decay
• Solve applied problems involving compound interest

Chapter 6: Systems of Equations and Matrices
Section 6.1, 6.2, 6.3: Matrices and Systems of Equations
SLO 5 – posted quiz similar to #27 p. 416 – using rref in calculator

Goal 6.1 and 6.2: to show students how to setup 3 X 4 system
Possible example for class: Sec 6.2 p. 414 Ex. 4 (Quadratic model; nice segue into curve fitting project, if your instructor chooses to do with your class).

• Goal 6.3: Solve systems of equations using matrices (State ACGM requirement)
  Instructor should show one example of elimination by hand. Then the focus should be on using the “rref” (Reduced Row Echelon Form) function on the Graphing Calculator to solve the systems. Handout with steps found in eCampus under Lesson Unit 6.

Chapter 8: Sequences, Series, and Combinatorics
Section 8.1: Sequences and Series  Ex. 1, 2, 4
• Find terms of sequences given the nth term
• Look for a pattern in a sequence and try to determine a general term
• Convert between sigma notation and other notation for a series

Section 8.7 Binomial Theorem  Ex. 1, 3
• Possible group activity in class: p 571 and 572 and apply to first three HW problems, p. 576
Appendix ii
MATH 1314 Weekly Course Calendar – FALL 2015
INET – online classes

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 16</td>
<td>Internet courses begin</td>
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<tr>
<td>December 2</td>
<td>12th day of class</td>
</tr>
<tr>
<td>November 26 – 29</td>
<td>Holiday – campus closed</td>
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<tr>
<td>Dec. 25 – Jan. 3</td>
<td>Holiday – campus closed</td>
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<tr>
<td>Feb. 2, 2016</td>
<td><strong>Drop Date – last day to drop with a grade of W</strong></td>
</tr>
<tr>
<td>March 1, 2016</td>
<td>Last Day for NON-North Lake Central Campus testing site</td>
</tr>
<tr>
<td>March 9, 2016</td>
<td>Last day to take Final Exam at the North Lake Testing Center (Central Campus only).</td>
</tr>
</tbody>
</table>

The following timeline is for all sections of Math 1314

- The dates listed below are the due dates for this course.
- The post-mark on the test will be the date used to determine if a test was taken on time, not the date of receipt by the instructor.
- Students are strongly encouraged to finish early and may take tests as quickly as they are able to complete the required material.
- All exams may be taken on or before the due date without any penalty.
- **The password to the written test will be accessible to you once you have completed the required material in MLP.**
- Once the password has been given, students have **48 hours** to email or mail in the completed test along with a self-addressed stamped envelope.
- A late penalty will apply for tests taken after the due date. See syllabus for details.
- See eCampus for procedure to submit your test for grading.
- **After December 5th the instructor will only grade one take home test and one proctored exam for each student.**
- **Multiple exams will not be accepted after the March 1, 2016 deadline.**
### Day 1
11-16-15

**eCampus Orientation:**
- Log into eCampus
- Carefully work through the START HERE section in eCampus
- Complete the “Getting Started Checklist” and work through all the folders in START HERE
- Complete the Day 1& 2 assignment
- Take the syllabus quiz

### Week 1
11-16-15

- **Section 1.1 + 1.2 (MLP)**
- **SLO 1 Activity - Required to turn in Activity:** “Finding the Domain and Range of a Square Root Function” (eCampus)
- **Supplement:** Domains
- **Handout:** Calculator Tips (eCampus ~ Lesson Unit Ch 1& 2)
- **Green Diploma Curve Fitting Project – Part I** (optional ~ ask instructor ~ eCampus SLOs & Projects)

### Week 2
11-23-15

- **SLO 1 Quiz in MLP**
- **Section 2.1 (MLP)**
- **Supplement:** Graphing Piecewise Functions (eCampus – Ch1&2)
- **Tax Chart & Water Bill Project** (optional – check with your instructor - project located in eCampus – SLO & Projects)
- **Section 2.2 (MLP)**
- **FAQ:** Difference Quotient and the Slope of the Secant Line
- **Green Diploma Curve Fitting Project – Part II** (optional ~ ask instructor ~ eCampus SLOs & Projects)

### Week 3
11-30-15

- **Sec 2.3 + 2.4 (MLP)**
- **Supplement:** Tests for Symmetry (eCampus – Ch 1 & 2)
- **Section 2.5 (MLP)**
- **Mastery Test:** Chapter 1 & 2 (MLP)

### Week 4
12-7-15

- **Written Test Ch 1 & 2**
- **Section 3.1 + 3.2 (MLP)**

### Week 5
12-14-15

- **Section 3.3 (MLP)**
- **Supplement:** Completing the Square or h = -b/(2a) You choose! (eCampus Ch 3)
- **Supplement:** Calculator Tips Part II
- **Section 3.4 + 3.5 (MLP)**
- **Mastery Test:** Chapter 3 (MLP)

### Week 6
12-21-15

- **Written Test Chapter 3**
- Review for Midterm ~ See eCampus for details about Midterm – under Lesson Units
- **Midterm Exam (Proctored Exam)**

### Week 7
12-28-15

- **Section 4.1 + 4.2 (MLP)**
- **SLO Activity 3: “Analyzing Graphs”** (eCampus ~ SLO & Projects). **Required to turn in.**
  Note: There are five SLO quizzes but only two SLO activities – one for SLO 1 and one for SLO 3

### Week 8
1-4-16

- **Section 4.3 + Sec 4.4 + Sec 4.5 (MLP)**
- ** Supplements:** Horizontal Asymptotes; Vertical Asymptotes vs. Holes
### FAQ – Section 4.4 & 4.5 Example problem including calculator steps
### FAQ: Graphing Rational Functions (eCampus Ch 4)

<table>
<thead>
<tr>
<th>Week 9</th>
<th>1-11-16</th>
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<tbody>
<tr>
<td></td>
<td>Section 4.6</td>
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<tr>
<td></td>
<td>Mastery Test: Chapter 4 (MLP)</td>
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<td></td>
<td><strong>Written Test: Chapter 4</strong></td>
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<td></td>
<td><strong>SLO Quiz 2 &amp; 3 (MLP) – Required</strong></td>
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<tr>
<th>Week 10</th>
<th>1-18-16</th>
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<tr>
<td></td>
<td>Section 5.1 + 5.2 + Sec 5.3 + Sec 5.4 (MLP)</td>
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<tr>
<td></td>
<td>Green Diploma Activity: Alternative Fuel Vehicles (eCampus – SLOs &amp; Projects)</td>
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<th>Week 11</th>
<th>1-25-16</th>
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<tr>
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<td><strong>November 19th – Last Day to Withdraw ~ Contact instructor 1st!</strong></td>
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<td>Section 5.5 + Sec 5.6 (MLP)</td>
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<td>Mastery Test: Chapter 5 (MLP)</td>
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<th>Week 12</th>
<th>2-1-16</th>
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<tr>
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<td><strong>Written Test: Chapter 5</strong></td>
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<td></td>
<td><strong>Green Diploma Curve Fitting Project – Part III</strong> (optional ~ ask instructor ~ eCampus SLOs &amp; Projects)</td>
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<tr>
<td></td>
<td><strong>SLO Quiz 4 (MLP) – Required</strong></td>
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<td></td>
<td>Section 6.1 + 6.3 (MLP)</td>
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<tr>
<td></td>
<td>Focus on setup of systems and using matrices to solve the systems – Students will use rref calculator function to solve the matrix.</td>
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<tr>
<td></td>
<td><strong>Supplement</strong>: Calculator handout: Matrices ~ using rref to solve systems (eCampus ~ Ch 6)</td>
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<td><strong>SLO Quiz 5 (MLP) – Required</strong></td>
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<tr>
<th>Week 13</th>
<th>2-8-16</th>
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<tr>
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<td>Section 8.1 + Sec 8.7 (MLP)</td>
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<tr>
<th>Week 14</th>
<th>2-15-16</th>
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<tbody>
<tr>
<td></td>
<td>Mastery Test Ch 6 &amp; 8 – <strong>No written chapter 6 &amp; 8 test</strong></td>
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<th>Week 15</th>
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<tr>
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<td><strong>Final Exam Review</strong></td>
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<td><strong>Proctored FINAL EXAM – deadline depends upon testing site</strong></td>
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<td>3/1/16 Last Day for NON-North Lake Central Campus testing site</td>
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<th>Week 16</th>
<th>3-9-16</th>
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<tbody>
<tr>
<td>Final Exam for North Lake testing center – <strong>central campus location only</strong>, last date: 3/9/16</td>
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<tr>
<td>Final Exam Covers Chapter 1, 2, 3, 4, 5, 6 &amp; 8</td>
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### Appendix iii

#### ACGM Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses.
2. Recognize and apply polynomial, rational, radical, exponential and logarithmic functions and solve related equations.

3. Apply graphing techniques.

4. Evaluate all roots of higher degree polynomials and rational functions.

5. Recognize, solve and apply systems of linear equations using matrices.

**Means of Assessment of Course Learning Outcomes**

Course Learning Outcomes will be assessed by a variety of means.

1. A written exam or Mastery test in MyLabsPlus will be given to assess each Learning Outcome.
2. Homework will be assigned and assessed using the software component.
3. Observation of students as they interact in groups and discussions will be used to assess all outcomes.
4. Students will complete projects and learning activities that will address specific course learning outcomes.

**Appendix iv**

**Student Guidelines for Written Assignments**

Writing mathematics is a lot like writing a composition paper. There is an introduction (the problem), body (work/steps), and a conclusion (the answer). Your work must flow in a clear, precise and logical order. You must use the proper notation and use the properties, theorems, and rules correctly.

Listed below are the expectations and guidelines for every assignment. Your grade will be based upon how well you follow these guidelines. The goal of these guidelines is to help you become a better thinker and presenter which will be beneficial for any career you choose.

**Expectations for all written assignments:**

1. If you use a spiral notebook and tear out the pages, you need to trim off the “shards” before turning in the assignment. Loose-leaf paper is preferred.

2. Your name, course number, and chapter and section from the text (if applicable) should be written in the upper right-hand corner of the first page. Each assignment should be stapled in the upper left-hand corner of the page.

3. Write the section and number of the problem or name of the assignment for each problem. Next include a summary of the problem and directions. Be sure to include all the given information in your summary and a picture of the problem if necessary.
4. If the problem requires you to introduce variables in order to solve it, clearly define the variables. Variables must represent numerical quantities (George's age), not objects (George). Be sure to include the units: feet, pounds, minutes, etc..

5. For word problems you will need to set up the equation(s) that model(s) the problem using the defined variables. State your final answer using a complete sentence and include the correct unit of measure (i.e. inches, feet, minutes, square feet, etc.).

6. Write the steps of the problem down the left-hand side of the paper with each step directly under the previous one. Show every step. Don’t skip a step even if you may think it is easy. The steps should be clear and follow a logical order. If numeric computations are necessary, do them neatly on the right-hand side of the paper.

7. Every statement you write must be a true statement. Use the correct notation.

8. Check your answer to make sure it is reasonable/correct with respect to the problem.

9. Skip at least 1 line between each problem.

For detailed examples of required work, see “Guidelines for All Tests and Assignments” document posted in your eCampus classroom.