

**Course Approval Document (CAD) Cover Sheet
for
Proposed Courses in the University Studies Program**

New: Revised:

Course Number: _____ Title: _____ Credit Hours: _____

University Studies Perspective(s): _____ Course Proposer(s): _____

University Studies Category(ies): _____

Name(s) of approving Department(s): _____ Date: _____

Name(s) of approving College Council(s): _____ Date: _____ Date Rec'd in Univ. St. Office: _____

Date approved by Univ. Studies Council: _____

CHECKLIST FOR UNIVERSITY STUDIES OBJECTIVES

OBJECTIVE	Course Components by US Objective					Emphasis on Objective		
	Student Learning Outcome	Content	Teaching Strategies	Student Assignments	Evaluation of Student Performance	Significant	Some	Not Emphasized
1. Locate and Gather Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Critical Thinking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Understand and Relate Human Experiences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Various Cultures and Interrelationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Breadth and Diversity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Valuing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Aesthetic Responses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Responsible Function in Natural, Social and Political Environments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MA115-02 Precalculus A with Integrated Review

Meeting Time and Place: 1:30-2:20pm, MWF, Johnson Hall 223

Instructor: Dr. Dan Daly **Office:** Johnson Hall 304 **Phone:** 573-651-2565

Office Hours: (JH 304) 3-4:30pm MW, 11-12pm TR and by apt; (JH 112): 1-2pm F

Website: learning.semo.edu, then look for MA116 under "My Courses"

Email: ddaly@semo.edu (put MA115 and time of class in subject line)

Prerequisites: MA 050 with a grade of NDC or higher, MA095 with a grade of NDC or higher, or MA106 or MA102 with a grade of C or higher, or with an ACT Math score of 15-21, or a required score on the appropriate departmental placement test.

Textbook: Lumen Learning (Open Educational Resources). You will be given information on how to access Lumen Learning on the first day of class.

Catalog Description: Functions and graphs, polynomial and rational functions, exponential and logarithmic functions, matrices. (University Studies course) (3)

Student Learning Outcomes:

- A. Students will be able to construct and simplify a difference quotient.
- B. Students will be able to solve exponential and logarithmic equations.
- C. Students will be able to use matrices to solve linear systems in three variables (University Studies Objective 3).

Grading Information: Grades will be earned by your final overall percentage: "A" $\geq 90\%$, $90\% > \text{"B"} \geq 80$, $80 > \text{"C"} \geq 70$, $70 > \text{"D"} \geq 60$, "F" < 60 , "X" if the final exam is not taken. Grades will be weighted using the percentages below:

Written and Online Homework	15%
Four paper and pencil exams	50%
Paper quizzes with lowest scored dropped	15%
Final examination	20%

Tentative Schedule: The instructor reserves the right to adjust the schedule.

		Monday	Tuesday	Wednesday	Thursday
1	8/21	Linear Equation Solving with Fractions Linear Inequalities in One Variable / Interval Notation Sections 1.1, 1.2, 1.3, 1.4, 1.5	Equations Graphing Lines, Average rate of Change Sections 2.1 – 2.3	(Parallel/Perpendicular Lines)/Midpoint of a Line Segment Linear Inequalities in Two Variables Functions Section 2.4	Sections 2.5, 2.6 Relations and Functions Quiz 1
2	8/28	Sections 2.5, 2.6 Relations and Functions	Systems of Linear Equations and applications Sections 3.1, 3.3	Absolute Value Equations and Inequalities Section 1.7	Product Rule for Integer Exponents Sections R.3, 4.1 Quiz 2
3	9/4	Labor Day No Classes	Polynomial Addition/Subtraction/Multiplication Sections 4.2, 4.4	Polynomial Functions, Graph and Composition Sections 4.3 (some from 4.4)	Exam 1 (1.1-1.5, 1.7,, 2.1-2.6, 3.1, 3.3, R.3, 4.1)
4	9/11	Factoring (Solving Quadratic/Cubic Equations by Factoring) Sections 5.1 – 5.2	Factoring (Solving Quadratic/Cubic Equations by Factoring) Sections 5.3 – 5.4	Factoring (Solving Quadratic/Cubic Equations by Factoring) Sections 5.5	Radicals (nth roots, simplifying expressions, addition, subtraction, multiplication, division), Distance Formula/Pythagorean Theorem Sections 7.1, 7.3 Quiz 3
5	9/18	Radicals (nth roots, simplifying expressions, addition, subtraction, multiplication, division), Distance Formula/Pythagorean Theorem	Radicals (nth roots, simplifying expressions, addition, subtraction, multiplication, division) Sections 7.4, 7.5	Radicals (nth roots, simplifying expressions, addition, subtraction, multiplication, division) Sections 7.4, 7.5	Complex Number Arithmetic Section 7.7 Quiz 4

		Sections 7.1, 7.3			
6	9/25	Completing the Square, Quadratic Formula Section 8.1, 8.2	Graphs of Quadratic Functions (Domain/Range) Section 9.2, 9.3	Finish 9.2/9.3; Polynomial Division Section 4.5	Zeros of Polynomials Combine Sections 11.1, 11.2 Quiz 5
7	10/2	Zeros of Polynomials Combine Sections 11.1, 11.2	Zeros of Polynomials Combine Sections 11.1, 11.2	Transformations with Polynomials 11.3	Exam 2 (4.2-4.5, 5.1-5.5, 7.1, 7.3-7.5, 7.7, 8.1, 8.2, 9.2, 9.3)
8	10/9	Transformations with Polynomials 11.3	Rational Expressions and Equations, Multiplication and Division 6.1	Adding and Subtracting Rational Expressions, Complex Fractions Section 6.2, 6.3	Rational Equations Graphing Rational Functions $1/x^n$, with transformations 6.4 Quiz 6
9	10/16	Rational Equations and Applications Sections 6.5, 8.3	Graphs and Applications of Rational Functions Sections 11.4 Extra problems involving finding equations of rational functions given data (including holes which are nonlinear).	Graphs and Applications of Rational Functions Sections 11.4	Polynomial and Rational Inequalities Sections 8.5 Quiz 7
10	10/23	Include a review of integer exponents, Include a review of radicals Rational Exponents Radicals (Negative/Rational Exponents, Exponent Rules) Sections 7.1, 7.2	Radical Functions and Graphing radical equations Sections 7.1, 7.2	Solving Radical Equations Sections 7.6, 8.3, 8.4	Exam 3 (11.1-11.4, 6.1-6.5, 8.3, 8.5)
11	10/30	Solving Radical Equations Sections 7.6, 8.3, 8.4	Function Composition Section 9.1	Increasing/Decreasing/Symmetry Section 9.4	Piecewise Functions Section 9.5 Quiz 8
12	11/6	Inverse Functions Section 10.1	Exponential/Logarithmic Functions Section 10.2	Exponential/Logarithmic Functions Sections 10.3 – 10.5	Exponential/Logarithmic Functions Sections 10.3 – 10.5 Quiz 9
13	11/13	Solving Exponential/Logarithmic Equations Section 10.6	Solving Exponential/Logarithmic Equations Section 10.6 Extra problems where students create exponential growth/decay model.	Graphing Exponential/Logarithmic Functions (Domain/Range, Transformations)	Graphing Exponential/Logarithmic Functions (Domain/Range, Transformations) Quiz 10 Friday 11/17 is the last day to drop a full semester class or withdraw from the University without failing grades.
14	11/20	Thanksgiving	Thanksgiving	Thanksgiving	Thanksgiving
15	11/27	Systems of Linear Equations and Inequalities	Systems of Linear Equations and Inequalities	Matrices, Matrix Operations	Exam 4 (9.1, 9.4, 9.5, 10-1-10.6, Graphing Log/Exp Fns)
16	12/4	Matrices, Matrix Operations	Matrices, Matrix Operations	Review for Final	Review for Final
17	12/11	Final Exam Week Final Exam 10:00 – 11:50 am	Final Exam Week	Final Exam Week	Final Exam Week

Important Dates: **Friday, November 17 by 5:00 pm** is the last day to drop a full semester class or withdraw from the university without failing grades. The Mathematics Department Chairperson and the College of Science, Technology, and Agriculture Dean do not make exceptions to this deadline. **Wednesday, 12/13, 12-2:00pm** is the comprehensive final exam date for this course. Any student who does not take the final exam will earn an "X" (failing and non-attending) for this course.

Required Materials: Students purchase a subscription to the on-line learning website, Lumen Learning, upon enrollment in this course. In addition to bringing writing implements and paper to every class period, students may use a calculator for most activities. There is no required brand of calculator. Calculators with computer algebra systems (CAS) and/or internet access are not allowed. A phone or other electronic device may not be used as a calculator during quizzes or exams. Calculator sharing during quizzes or exams is not allowed.

Internet Browser: Lumen Learning works best with Chrome.

General Information: This is a fast-paced course with much material to cover. Students will be required to do significant work outside of class. The class reviews material from Intermediate Algebra along with College Algebra. The instructor may lecture or students may have an activity during the class period. For any remaining class time, students will use class time wisely, working on mathematics the entire class period. In this course missing a single class period is equivalent to missing two class periods in a standard three credit hour course. To be successful, plan to attend and engage in every class period without exception.

Lumen Learning Practice Assignments - Each section has a practice assignment.

Class Policies:

- Lumen Learning assignments may be completed past the due date for 70% credit. A 30% penalty will be deducted only on those exercises scored after the due date. The final deadline for submitting any Lumen Learning practice assignments will be at class time on the day of the final exam.
- Much of the value of any math course comes from communicating about mathematics through participation in class activities and discussion. Students are expected to participate in all classroom activities for full or partial credit. You will be scored on your ability to communicate written mathematics effectively. Without a university-sanctioned activity written excuse, in class activities or cannot be submitted early or made up; absent students will simply earn a zero for the assignment.
- The lowest four Lumen Learning Practice scores will be dropped at the end of the semester.
- Missed paper quizzes may **not** be made up, but the lowest quiz score will be dropped at the end of the semester.
- To make up an hour exam, you must contact the instructor as soon as possible, prior to the exam. Appropriate documentation must be provided. Missed exams must be made up prior to their return, usually the following class period. Exams must be returned to students in a timely manner, so if an exam is graded and returned to students, you lose the right to make up the exam. Missed exam make-up appointments will result in the loss of the right to take the exam.
- If your final exam percentage is greater than your lowest test score, the final exam will count two ways – once as the final exam grade and once to replace one lower test score. If your final exam percentage is lower than all the tests, the percentage on the final will only be used as the final exam grade.

Academic Honesty: See your bulletin for a description of the Academic Honesty policy. Cheating on an exam or assignment will result in a zero for that activity, and may result in disciplinary action by the University. Students are encouraged to work together to study and do problems for this course, but each student is expected to turn in work that represents his or her own effort. During a quiz or exam no homework or notes should be visible. All electronic devices will be stowed in pocket, purse, or backpack. Devices may not be on worktable or in lap.

Getting Help: **There is no shame in needing help in any university course; seek help immediately so as to not fall behind.**

- Attend your instructor's office hours.
- Visit the Math Learning Center in Johnson 112 (a computer lab) and Memorial Hall 104 where an advanced mathematics tutor is always available. The hours in both centers are 9 am to 5 pm Monday through Thursday, and 9 am to 2 pm on Fridays. Also on Tuesday and Thursday evenings, the JH112 lab is open until 7 pm.
- Sign up for a free tutor from the Learning Assistance Programs in the University Center, (573) 651-2512, <http://www.semo.edu/sss/>
- Get counseling for math anxiety, test anxiety, personal problems from the University Counseling Services (573) 986-6191, <http://www.semo.edu/ucs/>.
- If you have a documented disability, meet with the instructor early in the semester to discuss accommodations.

Classroom Conduct: Diversity in all its form is valued and merits respect. A major determinant of a successful educational experience is a shared sense of respect among students and their instructor. In our classroom, mutual respect will be maintained at all times, both in word and deed. To minimize disruption to your fellow classmates, please remember not to leave the classroom until class is dismissed, not to carry on personal conversations unrelated to the topic at hand, and turn off cell phones.

Use your Southeast email account: You are responsible for the information in any Southeast e-mail sent by any Southeast employee. When you email, for your own protection, use your Southeast account.

Questions?: Questions, comments, or requests regarding this class should be directed to me, Dr. Daly. Unanswered questions or unresolved issues involving this class may be taken to Dr. Tamela Randolph, Chairperson of the Department of Mathematics.

Honors: Are you in the Jane Stephens Honors Program and interested in creating an honors contract? I am an Honors Faculty member and would be more than happy to work with you this semester. Please contact me the first two weeks of class through email, office hours, or set up an appointment.

COURSE APPROVAL DOCUMENT
Southeast Missouri State University

Department: Mathematics _____

Course No. MA115 _____

Title of Course: Precalculus A with Integrated Review

Date: Fall 2018

Please check: X New
 Revision

I. Catalog Description (Credit Hours of Course):

Functions and graphs, polynomial and rational functions, exponential and logarithmic functions, matrices.
(University Studies course) (5)

II. Prerequisite(s):

MA 050 with a grade of NDC or higher, MA095 with a grade of NDC or higher, or MA106 or MA102 with a grade of C or higher, or with an ACT Math score of 15-21, or a required score on the appropriate departmental placement test.

III. Purposes or Objectives of the Course (optional):

The course is included in the logical systems category of the University Studies program. The primary purposes of the course are to develop problem-solving capabilities requiring a logical structure and to provide the essential algebraic background for work in other fields or courses. The students will be given problems in many disciplines that use algebra in their solutions, thus giving insights into the importance of mathematical skills in almost all aspects of society. Whenever possible the historical development of a problem and its resulting solution will be discussed, and the students will be shown how continued mathematical progress is still affecting modern technology. This course includes concomitant instruction and problems on the intermediate algebra skills necessary to successful completion of the Precalculus portion of this course.

IV. Course Learning Outcomes (Minimum of 3):

- A. Students will be able to use the principles of exponential and logarithmic functions to graph, solve equations, and apply these functions to a real-life situation. (University Studies Objective 6)
- B. Students will be able to use the principles of polynomial and rational functions to graph, find complex zeros, and solve inequalities. (University Studies Objective 2)
- C. Students will be able to use matrices to solve linear systems in three variables. (University Studies Objective 3)

V. Names of Faculty Qualified to Teach the Proposed Course:

1. Henry Clark
2. Dan Daly
3. Paul Deiermann
4. Natalya Kutsevalova
5. Avelina Lichtenegger
6. Garion Lovig
7. Cheryl McAllister
8. James McEwen
9. William McNeary
10. Peter Oman
11. Laurie Overmann
12. Michael Presho
13. Tamela Randolph
14. Craig Roberts
15. Ann Schnurbusch
16. Andrew Schwartz
17. Pradeep Singh
18. Emmanuel Thompson

19. Caroline Thornburgh
20. Mohan Tikoo
21. Haohao Wang
22. Jerzy Wojdylo
23. Yanping Xia

VI. Course Content or Outline (Indicate number of class hours per unit or section):

Topics	Class Hours
Linear Inequalities in One Variable / Interval Notation Cartesian Coordinate Systems, Linear Equations, Slope Graphing Lines (Parallel/Perpendicular Lines)/ Functions, Domain/Range Linear Inequalities in Two Variables Systems of Linear Equations and Applications Rules for Whole Number Exponents Polynomial Addition/Subtraction/Multiplication	11
Rules for Whole Number Exponents Polynomial Addition/Subtraction/Multiplication Factoring (Solving Quadratic/Cubic Equations by Factoring) Radicals (nth roots, simplifying expressions, addition, subtraction, multiplication, division) Complex Number Arithmetic Completing the Square Quadratic Formula Pythagorean Theorem/Applications of Quadratics Graphs of Quadratic and Cubic Functions (Domain/Range) Polynomial Division Zeros of Polynomials/Factors and Remainder Theorem Graphs of Polynomial Functions (Intercepts, Zeros, End-Behavior, Transformations) Increasing/Decreasing/Average Rate of Change	21
Rational Expressions and Equations Rational Functions (Domain/Range) Graphing Rational Functions (Transformations, $y=1/x$ and $y=1/x^2$) Graphing Rational Functions (Intercepts, Asymptotes [Horizontal, Vertical,	12

Oblique], Holes, End-Behavior) Polynomial/Rational/Absolute Value Inequalities	
Radicals (Negative/Rational Exponents, Exponent Rules) Radical Functions Solving Radical Equations Graphing Radical Functions (Domain/Range, Transformations)	8
Piecewise Functions (including Absolute Value) Function Composition (also decompose) Function Inverses Exponential/Logarithmic Functions Solving Exponential/Logarithmic Equations Graphing Exponential/Logarithmic Functions (Domain/Range, Transformations)	12
Systems of Linear Equations and Inequalities, Matrices, Matrix Operations	5
Review	2
Exams	4
TOTAL	75

Attach the following:

- ☐ copy of example class syllabus and course schedule.
- ☐ memo from Library Dean assessing available and needed library holdings and resources.
- ☐ memo(s) from Department Chairs in affected departments stating possible issues and/or conflicts are resolved.

Signature: _____
Chair

Date: _____

Signature: _____
Dean

Date: _____