

**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"/>

**COURSE APPROVAL DOCUMENT**  
Southeast Missouri State University

Department: Mathematics \_\_\_\_\_

Course No. MA117 \_\_\_\_\_

Title of Course: Precalculus B \_\_\_\_\_

Date: Fall 2018 \_\_\_\_\_

Please check: X New  
 Revision

**I. Catalog Description (Credit Hours of Course):**

Geometric and trigonometric reasoning required for calculus. Trigonometric functions, identities, graphs and equations, vectors, polar coordinates and conics. (3)

**II. Prerequisite(s):**

One of the following:

- 1.) MA 115 – Precalculus A with Integrated Review with a minimum grade of 'C'
- 2.) MA 116 – Precalculus A with a minimum grade of 'C'

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

This is the second of two courses intended to prepare students for the study of calculus. The focus of this course is on geometric and trigonometric reasoning necessary for the study of calculus.

**IV. Course Learning Outcomes (Minimum of 3):**

- A. Students will be able to use the concept of a vector and its application to find the resultant acting upon a body.
- B. Students will be able to prove trigonometric identities and use them to solve trigonometric equations.
- C. Students will be able to apply the Law of Sines and Law of Cosines to solve application problems.

**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):**

<b>Topics</b>	<b>Class Hours</b>
Distance Formula, Midpoint Formula, Circles	2
Angles, Reciprocal, Pythagorean and Quotient Identities, Right-Triangle Definition of Trigonometric Functions, Solutions and Applications of Right Triangles	6
Radian Measure, Unit Circle, Unit Circle Definition of Trigonometric Functions, Graphs of Trigonometric Functions (Sine, Cosine, Tangent, Cotangent, Secant, Cosecant), Transformations of Graphs of Trigonometric Functions	8
Verifying Trigonometric Identities, Sum, Difference, Double-Angle and Half-Angle Identities, Inverse Trigonometric Functions, Solving Equations Involving Trigonometric and Inverse Trigonometric Functions	12
Law of Sines, Law of Cosines, Vectors, Dot Product, Polar Form of Complex Numbers, DeMoivre's Theorem, Polar Equations and Graphs	8
Conics: Parabolas, Ellipses, Hyperbolas; Transformations of Conics	6
Exams	3
<b>TOTAL</b>	<b>45</b>

**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: \_\_\_\_\_

## MA117-02 Precalculus B

**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 MA117 under “My Courses”

**Email:** ddaly@semo.edu      (**put MA117 and time of class in subject line**)

**Prerequisites:** One of the following:

1.) MA 115 – Precalculus A with Integrated Review with a minimum grade of ‘C’

2.) MA 116 – Precalculus A with a minimum grade of ‘C’

**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:** Geometric and trigonometric reasoning required for calculus. Trigonometric functions, identities, graphs and equations, vectors, polar coordinates and conics. (3)

**Student Learning Outcomes:**

A. Students will be able to use the concept of a vector and its application to find the resultant acting upon a body.

B. Students will be able to prove trigonometric identities and use them to solve trigonometric equations.

C. Students will be able to apply the Law of Sines and Law of Cosines to solve application problems.

**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	Wednesday	Friday
<b>1</b>	8/21	Introduction to class, Midpoint Formula, Distance Formula	Circles	Angles (Degree Measure), Right Triangle Definition of Trigonometric Functions
<b>2</b>	8/28	Reciprocal and Quotient Identities	Pythagorean Identities	Solutions and Applications of Right Triangles
<b>3</b>	9/4	Labor Day No Classes	Radian Measure and the Unit Circle	Unit Circle Definition of Trigonometric Functions
<b>4</b>	9/11	Unit Circle Definition of Trigonometric Functions	Graphs of $\sin(x)$ and $\cos(x)$	Exam 1
<b>5</b>	9/18	Graphs of $\tan(x)$ , $\cot(x)$ , $\sec(x)$ and $\csc(x)$	Transformations of Graphs of Trigonometric Functions	Transformations of Graphs of Trigonometric Functions
<b>6</b>	9/25	Transformations of Graphs of Trigonometric Functions	Verifying Trigonometric Identities	Verifying Trigonometric Identities
<b>7</b>	10/2	Sum/Difference Identities	Double-Angle Identities	Half-Angle Identities
<b>8</b>	10/9	Applications of Trigonometric Identities	Inverse Trigonometric Functions	Inverse Trigonometric Functions
<b>9</b>	10/16	Inverse Trigonometric Functions	Solving Trigonometric Equations	Exam 2
<b>10</b>	10/23	Solving Trigonometric Equations	Solving Trigonometric Equations	Law of Sines
<b>11</b>	10/30	Law of Sines	Law of Cosines	Vectors
<b>12</b>	11/6	Vectors	Dot Product	Polar Form of Complex Numbers, DeMoivre’s Theorem
<b>13</b>	11/13	Polar Equations and Graphs	Polar Equations and Graphs	Exam 3
<b>14</b>	11/20	Thanksgiving	Thanksgiving	Thanksgiving

15	11/27	Conics: Parabolas	Conics: Ellipses	Conics: Ellipses and Hyperbolas
16	12/4	Conics: Hyperbolas	Transformations of Conics	Transformations of Conics
17	12/11	Final Exam Week	Final Exam Week <b>Final Exam 12-2:00pm</b>	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.