THE OHIO STATE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES

SYLLABUS: MATH 1150
PRECALCULUS (AU 2022)

Course overview

Course description

Functions and applications: polynomial, rational, exponential, logarithmic, and trigonometric functions. Prereq: Math Placement Level M. Not open to students with credit for 1144, 1148, or for 1149 or above, or for any quarter Math course numbered 150 or above.

GEN:

Goals:

Successful students will be able to apply quantitative or logical reasoning and/or mathematical/statistical methods to understand and solve problems and will be able to communicate their results.

Expected Learning Outcomes:

Successful students are able to:

1. Use logical, mathematical, and/or statistical concepts and methods to represent real-world situations.
2. Use diverse logical, mathematical, and/or statistical approaches, technologies, and tools to communicate about data symbolically, visually, numerically, and verbally.
3. Draw appropriate inferences from data based on quantitative analysis and/or logical reasoning.
4. Make and evaluate important assumptions in estimation, modeling, and logical augmentation and/or data analysis.
5. Evaluate social and ethical implications in mathematical and quantitative reasoning.

GEL:

Goals:

Students develop skills in quantitative literacy and logical reasoning, including the ability to identify valid arguments, and use mathematical models.

Expected Learning Outcomes:

Mathematical or Logical Analysis

1. Students comprehend mathematical concepts and methods adequate to construct valid arguments.
2. Students comprehend mathematical concepts and methods adequate to understand inductive and deductive reasoning
3. Students comprehend mathematical concepts and methods adequate to increase their general problem solving skills.

Course learning outcomes

By the end of this course, students should successfully be able to:

- Identify varying and co-varying quantities in a problem setting.
- Become proficient in analyzing functions with various representations.
- Graph functions and identify the main features of their graphs.
- Construct models using “elementary functions” such as polynomial, exponential, logarithmic, and trigonometric functions.
- Apply trigonometry in a wide range of problems
- Have acquired prerequisites for Calculus.

Course material

Required: **E-BOOK together with ACCESS CODE.** The e-book College Algebra & Trigonometry Enhanced 1e, by Miller and Gerken, ISBN 9781259976612, is sold together with the access code to Enhanced Connect Math. It may be purchased online (instructions are available in Carmen. Go to "Modules" then "Enhanced connect math new student registration").

If you **already have an account** from a previous course, you do not need to make a new purchase.

Optional: A graphing Calculator such as TI-83, TI-83 plus, or TI-84 is recommended in this course. However, TI-89, TI-92, and calculators with a Computer Algebra System Capability are not permitted**.**

Course Delivery

Course Information:

The course information and announcements are posted in Carmen.

Lectures and recitation classes: Times and locations are listed in your OSU classes' schedule.

Help with the course:

- **OFFICE HOURS:** Both your lecturer and your recitation instructor will have office hours.
- **MATHEMATICS AND STATISTICS LEARNING CENTER (MSLC):** MSLC will be offering tutoring services. Please visit the MSLC website https://mslc.osu.edu

Assessment and course grade

Homework

The homeworks are in Connect math. **It is strongly recommended to access Connect math via Carmen** (Click "Modules" then "McGraw-Hill Campus" then "Connect Math" tab). The **lowest three scores** of your homeworks will be dropped.

Quizzes

The quizzes are in recitation class. The **lowest two scores** will be dropped.

Exams

The exams are in Carmen "Quizzes". They should be **completed individually with no external help**. Read carefully the "**Academic integrity policy**" section in this syllabus.

Due dates:

The **homeworks' due dates** as well as the **quizzes and exams' schedule** are on the "Course Schedule" section of this syllabus (they are also listed in Connect math and in Carmen).

Makeup exams: **Contact your lecturer** as soon as a conflict with an exam's schedule rises, and expect to provide a **documentation** of your excuse.

Missed quizzes: **Contact your recitation instructo**r as soon as you have an issue with taking a quiz.

Late assignments: Late assignments are not accepted without a medical excuse.

Grade Composition

Assignment category	*Percentage*
Homework	30%
Quizzes	30%
Exams	40%
Total	100%

Grading scale minimum cutoffs

A	**A-**	**B+**	**B**	**B-**	**C+**	**C**	**C-**	**D+**	**D**
90%	87%	83%	80%	77%	73%	70%	67%	63%	60%

Course technology

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at https://ocio.osu.edu/help/hours, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** http://ocio.osu.edu/selfservice
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** 614-688-8743

Enhanced connect math issues: visit https://www.connectmath.com/support/contact_support

Baseline technical skills necessary for this course

- Basic computer and web-browsing skills
- Navigating Carmen

Technology skills necessary for this specific course

- Mathematical typesetting software
- Ability to adequately scan written mathematical work.

Necessary equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Microphone: built-in laptop or tablet mic or external microphone

Necessary software

- Microsoft Office 365 ProPlus All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Each student can install Office on five PCs or Macs, five tablets (Windows, iPad® and Android™) and five phones.
    - Students are able to access Word, Excel, PowerPoint, Outlook and other programs, depending on platform. Users will also receive 1 TB of OneDrive for Business storage.
    - Office 365 is installed within your BuckeyeMail account. Full instructions for downloading and installation can be found https://ocio.osu.edu/kb04733.

  The use of mathematical typesetting software is strongly recommended. Built in functions of Microsoft Word provide many functions that should be sufficient for most needs.

Course schedule (subject to adjustments)

Homeworks are in **Connect math,** and due at **11:59 pm** on their due dates (see schedule below).
It is strongly recommended to access your homework via Carmen (Click "Modules" then "McGraw-Hill Campus" then the "Connect Math" tab).
Quizzes are in **recitation** class. The duration of the quizzes is **15 minutes**.
Exams are in **Carmen "Quizzes". They have a duration of 4 hours and will be available between 8 am and 11:59 pm** on their scheduled dates. The exams' detailed information will be **posted** in Carmen "Announcements".

Week & Dates		Topics	Assignments due dates	
1	8/23 (T) 8/24 (W) 8/25 (R) 8/26 (F)	Recitation (**in your recitation classroom**) 2.3 Functions (**in your lecture hall**) 2.4/2.6 Linear Functions/ Transformations of Graphs		
2	8/29 (M) 8/30 (T) **8/31 (W)** **9/1 (R)** 9/2 (F)	2.7 Analyzing Graphs of Functions 2.8 Algebra of Functions 3.1/3.2 Quadratic/Polynomial Functions	**8/31 (W)** **9/1 (R)**	***HW 1*** *(in Connect math)* ***Quiz 1*** *(in recitation) through 2.6*
3	9/5 (M) 9/6 (T) **9/7 (W)** **9/8 (R)** 9/9 (F)	Labor day. No classes 3.2/3.3 Poly. Fun./Division of Polynomials 3.3/3.4 Division of Poly/ Zeros of Polynomials	**9/7 (W)** **9/8 (R)**	***HW 2*** ***Quiz 2*** *(in recitation) through 3.1*
4	9/12 (M) 9/13 (T) **9/14 (W)** **9/15 (R)** 9/16 (F)	3.5 Rational Functions 3.6 Inequalities **Review**	**9/14 (W)** **9/15 (R)**	***HW 3*** ***Quiz 3*** *(in recitation) through 3.4*
5	**9/19 (M)** 9/20 (T) **9/21 (W)** 9/22 (R) 9/23 (F)	4.1 Inverse Functions 4.2 Exponential Functions 4.3 Logarithmic Functions	**9/19 (M)** **9/21 (W)**	***Exam 1*** *(in Carmen) through 3.6* ***HW 4***
6	9/26 (M) 9/27 (T) **9/28 (W)** **9/29 (R)** 9/30 (F)	4.4 Properties of Logarithms 4.5 Exponential and Logarithmic Equations 4.6 Modeling with Exp. and Log. Functions	**9/28 (W)** **9/29 (R)**	***HW 5*** ***Quiz 4*** *(in recitation) through 4.3*
7	10/3 (M) 10/4 (T) **10/5 (W)** **10/6 (R)** 10/7 (F)	5.1 Angles and Their Measure 5.2 Right Triangle Trigonometry 5.3 Trig. Functions of Angles	**10/5 (W)** **10/6 (R)**	***HW 6*** ***Quiz 5*** *(in recitation) through 4.6*
8	10/10 (M) 10/11 (T) **10/12 (W)** 10/13 (R) 10/14 (F)	5.4 Trig. Fun. and The Unit Circle 5.5 Graphs of Sine and Cosine Autumn break. No classes Autumn break. No classes	**10/12 (W)**	***HW 7***

	10/17 (M)	5.5/5.6 Graphs of Trig Functions		
	10/18 (T)			
9	**10/19 (W)**	5.6 Graphs of Other Trig Functions	**10/19 (W)**	***HW 8***
	10/20 (R)		**10/20 (R)**	***Quiz 6*** *(in recitation) through 5.5*
	10/21 (F)	**Review**		
	10/24 (M)	5.7 Inverse Trig. Functions	**10/24 (M)**	***Exam 2*** *(in Carmen) through 5.6*
	10/25 (T)			
10	**10/26 (W)**	5.7 Inverse Trig. Functions	**10/26 (W)**	***HW 9***
	10/27 (R)			
	10/28 (F)	6.1 Trigonometric Identities		
	10/31 (M)	6.2 Sum/Difference Formulas		
	11/1 (T)			
11	**11/2 (W)**	6.3 Double/Half Angle Formulas	**11/2 (W)**	***HW 10***
	11/3 (R)		**11/3 (R)**	***Quiz 7*** *(in recitation) through 6.1*
	11/4 (F)	6.5 Trigonometric Equations		
	11/7 (M)	6.5 Trigonometric Equations		
	11/8 (T)			
12	**11/9 (W)**	7.2 The laws of Sines	**11/9 (W)**	***HW 11***
	11/10 (R)	Veterans Day. No classes		
	11/11 (F)	7.2/7.3 Laws of Sines/Law of Cosines		
	11/14 (M)	8.4 Vectors		
	11/15 (T)			
13	**11/16 (W)**	8.4 Vectors	**11/16 (W)**	***HW 12***
	11/17 (R)		**11/17 (R)**	***Quiz 8*** *(in recitation) through 7.2*
	11/18 (F)	8.5 Dot Product		
	11/21 (M)	8.5 Dot Product		
	11/22 (T)			
14	11/23 (W)	No classes		
	11/24 (R)	Thanksgiving. No classes		
	11/25 (F)	No classes		
	11/28 (M)	9.1/9.2 Syst. of Lin. Equ. In two/ Three variables		
	11/29 (T)		**11/30 (W)**	***HW 13***
15	**11/30 (W)**	11.1 The Ellipse	**12/1 (R)**	***Quiz 9*** *(in recitation) through 8.5*
	12/1 (R)			
	12/2 (F)	11.2 The Hyperbola		
	12/5 (M)	11.3 The Parabola		
	12/6 (T)			
16	**12/7 (W)**	**Review**	**12/7 (W)**	***HW 14***
	12/8 (R)	Reading day. No classes		
	12/9 (F)		**12/9 (F)**	***Final Exam*** *(in Carmen)*

List of recommended practice Problems

Section	Practice Problems (these are not due)	Section	Practice Problems (these are not due)
2.3	11 - 121 odd	5.3	9 – 95 odd
2.4	79, 85 – 89 odd	5.4	11 – 89 odd
2.6	9 – 99 odd	5.5	9 – 67 odd, 77 – 89 odd
2.7	7 – 71 odd, 89 – 111 odd, 133 – 135 odd	5.6	9 – 67 odd
2.8	5 – 109 odd	5.7	7 – 87 odd, 101 – 103 odd
3.1	7 – 55 odd	6.1	11 – 51 odd, 57 – 97 odd, 103 – 105
3.2	1 – 87 odd	6.2	7 – 69 odd, 87 – 89 odd
3.3	1 – 21, 39 – 41, 55 – 61, 71 – 81, 87 – 91 all odd	6.3	7 – 81 odd
3.4	29 – 47 odd, 85 – 95 odd	6.5	5 – 47 odd, 53 – 61 odd, 69 – 73 odd, 81 – 87 odd
3.5	1 – 89 odd	7.2	7 – 69 odd
3.6	1 – 83 odd	7.3	5 – 41 odd
4.1	1 – 73 odd		
4.2	9 – 61 odd, 71 – 77 odd	8.4	11 – 103 odd
4.3	9 – 49 odd, 55 – 121 odd	8.5	7 - 89 odd
4.4	7 – 97 odd	9.1	1 – 53 odd
4.5	5 – 125 odd	9.2	3 – 47 odd, 79 – 83 odd
4.6	5 – 29 odd	11.1	11 – 21 odd, 63 – 67 odd, 73 –77 odd
5.1	35 – 127 odd	11.2	9 – 21 odd, 51, 61
5.2	13 – 89 odd	11.3	15 – 33 odd, 69

Grading and faculty response

Faculty feedback and response time

The following list is provided to give you an idea of your instructors' availability throughout the course. Remember that you can call **614-688-HELP** at any time if you have a technical problem.

Grading and feedback

For graded assignments, you can generally expect feedback within **one week**.

E-mail

Instructors will reply to e-mails within **24 hours on school days**.

Discussion board

Instructors will check and reply to messages in the discussion boards every **24 hours on school days**.

Attendance, participation, and discussions

Student participation requirements

Your attendance is based on your online activity and participation, in addition to recitation class attendance. Be sure you are logging in to the course in Carmen at least **three times** each week, including weeks with holidays. If you have a situation that might cause you to miss an entire week of class, discuss it with your instructor as *soon as possible.*

Discussion and communication guidelines

The following are the expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style**: While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation.
- **Tone and civility**: Please maintain a supportive learning community where everyone feels safe. No student should be marginalized in any form for questions or contributions made in class, during office hours, or in an online forum. Students should cooperate to help each other's understanding of the mathematical concepts covered in class regardless of their background.
- **Citing your sources**: When we have academic discussions, please cite your sources to back up what you say. (For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.)
- **Backing up your work**: Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Other course policies

Student academic services

Student academic services offered on the OSU main campus
http://advising.osu.edu/welcome.shtml.

Student support services

Student support services offered on the OSU main campus http://ssc.osu.edu.

Academic integrity policy

Policies for this course

- **Exams**: You must complete the exams yourself, without any external help or communication.
- **Individual homework assignments**: You may discuss problems with other students in this course, but the final write-up should be entirely your own. You are not allowed to copy from resources that explicitly compile solutions to textbook problems (many of these also tend to be wrong!).
- **Reusing past work**: In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you have explored in previous courses, please discuss the situation with your instructor.
- **Collaboration and informal peer-review**: The course includes many opportunities for formal collaboration with your classmates. While study groups and peer-review of written work is encouraged, remember that comparing answers on a test or individual assignment is not permitted.

Ohio State's academic integrity policy

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct **http://studentlife.osu.edu/csc/**.

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at http://titleix.osu.edu or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu

Accessibility accommodations for students with disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- Carmen (Canvas) accessibility
- Streaming audio and video
- Synchronous course tools

Your mental health!

As a student you may experience a range of issues that can cause barriers to learning such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at suicidepreventionlifeline.org