BOB JONES UNIVERSITY
BUILD FAITH. CHALLENGE POTENTIAL. FOLLOW CHRIST.

MA 102
Applied Mathematics
2024–25 Second Semester

Instructor:	Mrs. Donna Lawrence
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Office Hours:	M-Th 9:00 am
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Extension:	8015
Section	TTh 9:35-10:50; AL 102

Course Description

An introductory course in basic applied mathematics.

Course Textbook

Mathematics All Around, 5th edition, Thomas L. Pirnot. Pearson

CONTEXT

The faculty of the Division of Mathematical Sciences has developed five broad goals and has aligned these goals with the Bob Jones University Institutional Goals and the goals of the BJU Core. We believe these goals support the goals of the University. The Division Goals are designed to develop each student to:
1. Understand the essential theory of mathematics/computer science and appropriately apply the theory in solving problems.
2. Use critical-thinking/analytical skills.
3. Understand mathematical/computing problems and design solutions with the aid of appropriate tools.
4. Apply an understanding of how mathematics/computing can be used in service to Christ as tools to the examination of the world He created.
5. Construct a foundation upon which they, after graduation, can continue the development of their God-given abilities and the learning necessary for their work and life.

COURSE GOALS

This course is designed to … (Division Goal numbers indicated in parentheses)
1. Ensure that students have the mathematical skills needed to be successful in everyday life. (2, 5)
2. Demonstrate mathematics as a tool that reveals God's handiwork in the world around us. (3, 4)
3. Develop godly character traits such as self-discipline, perseverance, honesty, and precision. (2, 5)
4. Develop thinking and reasoning skills. (1, 2, 5)

COURSE OBJECTIVES

	You will be able to	Course Goals Supported	Course Content
1.	Perform operations on integers.	CG 1, 3	Chapter 6
2.	Perform operations on rational numbers.	CG 1, 3	Chapter 6
3.	Apply the order of operations to simplify expressions.	CG 1, 3	Chapter 6
4.	Simplify expressions with exponents and radicals.	CG 1, 3	Chapter 6
5.	Solve word problems in various real-world contexts.	CG 1, 2, 3, 4	Chapter 6
6.	Convert between scientific notation and standard notation.	CG 1, 2, 3	Chapter 6
7.	Define basic geometric terms.	CG 2, 3	Chapter 9

8.	Calculate perimeter, area, and volume of geometric figures.	CG 1, 2, 3	Chapter 9
9.	Convert within and between the English and Metric system	CG 1, 2, 3, 4	Chapter 9
10.	Develop varying approaches to solve word problems	CG 2, 4	Chapter 1
11.	Determine if a conclusion is based on inductive or deductive reasoning	CG 2, 4	Chapter 1
12.	Determine if a deductive argument is valid	CG 2, 4	Chapter 1
13.	Calculate with percents	CG 1, 3	Chapter 8
14.	Use the simple interest formula to calculate interest amounts in loan and investment problems.	CG 1, 3, 4	Chapter 8
15.	Solve counting problems in various ways including using the fundamental counting principle	CG 2, 4	Chapter 12
16.	Determine the probability of an event occurring.	CG 2, 3, 4	Chapter 13
17.	Calculate the measures of central tendency	CG 2, 4	Chapter 14
18.	Use statistical graphs to answer questions.	CG 2, 3, 4	Chapter 14

COURSE POLICIES

General

Compliance with student handbook policies is expected during class.

Qualifications

Students taking this course must be in an Associates Degree program and have an ACT math score of 19 or below. The course is NOT open to any student with a math ACT score of 20 or above. (Or the SAT equivalent—a math score of 550 or above.)

Absent/Late

Absences should occur for very few reasons. *It is important for you to be on time and to be prepared for each class if you wish to maximize your learning and be successful in this class.* The following outlines how to handle necessary class absences.

For **planned absences**, please notify me as soon as you know that you will miss class. Scheduled tests should be taken prior to a planned absence. If you will be missing a test and you do not make arrangements with me before a planned absence, there will be a **10% deduction** in the test grade for taking it late. If you do not take the test by the scheduled time, you will also receive a **10% deduction** on the test.

For **absences due to an incapacitating illness or emergency**, please email me as soon as possible (within 24 hours), and let me know why you were absent. If you miss a test for an acceptable reason, you may take it without penalty in the Testing Center. Any test not taken by the instructor's deadline receives a **10% deduction**.

Being **late three times** is equivalent to **one absence**. Arriving to class more than 20 minutes after the start of the class or leaving class early without permission from the instructor, also results in an absence.

Calculators/Cell Phones/Laptop Computers

Any type of calculator may be used in Ma 100. The use of a cell phone, computer, tablet, etc. as a calculator is **not** permissible for tests. All cell phones must be on silent or vibrate during class. Laptop computers should not be used without consent from the instructor. Pencil and paper are best for taking notes in math class.

Homework

1. Homework should be done on regular sized paper (8.5 x 11 in.). Place your name and the chapter/section number in the top right-hand corner of every page. Staple together multiple homework pages for a single section. State the number of homework problems completed (not attempted) under the chapter/section number.
2. The answers to the odd-numbered problems are in the back of the book. Most of the assigned problems are odd. Part of the assignment is checking your answers and correcting any that you missed the first time.
3. Homework assignments will be worth 3 points each. They will be graded for completeness, neatness, and presentation. Presentation means the orderly and sequential working of problems and **the showing of all steps** with the final answer clearly marked. **Homework showing only answers when work is required will receive a penalty.**
4. Homework will be due the class day indicated on the syllabus unless otherwise stated by the instructor. Late homework will receive a penalty.

Group Assignments

One of the main objectives in this class is to learn to solve problems using mathematical tools. Students will work in groups to solve problems together on given days. This will typically take 20-30 minutes and be worth 10 points. Just one assignment will be submitted and graded for each group. Work should be shown on the assignment paper provided. Groups will be assigned by the instructor.

If you are absent on the day of a group assignment, you will receive a copy of the project on the day you return to class. You will have until the next class period to complete it on your own, otherwise you will receive a 0 for the project.

Grading

Item	Points
Homework	~70
Group Projects	130
Tests	300
Final Exam	150
Total	**650**

Grading Scale	
A	90–100
B	80–89
C	70–79
D	60–69
F	59 ↓

God's mandate in Genesis 1:28 makes mankind responsible for exercising dominion over the earth. Mathematics is an invaluable tool in accomplishing this task. The study of mathematics helps develop thinking and reasoning skills. God expects a Christian to be able to reason logically. (Isaiah 1:18) Studying mathematics also helps in the development of Christian character traits, such as diligence, honesty, precision, perseverance, and humility. The reflection of God's greatness through mathematics should increase Christ-likeness—the ultimate goal for each believer. (Colossians 1:17, Philippians 2:5)

Daily Assignments (dates subject to change – see Canvas for the most up-to-date schedule)

Date	Day	In Class	Sec #	Assignment due	# Prob
Jan 16	Th	Introduction, 6.1 Primes			
Jan 21	T	6.1 Factoring, DCF, LCM *GP 1 (Flooring)*			
Jan 23	Th	6.2 Integers *GP 2 (Stocks)*	6.1	1–19 odd, 35–45 odd, 49, 53, 57, 61, 63, 69, 72, 79, 81	25
Jan 28	T	6.3 Rationals	6.2	1–41 odd, 57–65 odd	26
Jan 30	Th	6.4 Real Numbers *GP 3 (Pizza Party)*	6.3	1–39 odd, 47–59 odd, 75, 79, 83, 89	31
Feb 4	T	6.5 Scientific Notation *GP 4 (Radicals)*	6.4	1–8, 11–39 odd, 59–68, 71, 79, 83	35
Feb 6	Th	6.5 Exponents Scientific Notation *GP 5 (Stars)*			
Feb 11	T	**Test 1–Number Theory**	6.5	1–25 odd, 29, 33, 37, 43, 45, 51, 53, 57, 67, 71, 88, 91	25
Feb 13	Th	9.1 Lines, Angles, Circles/9.2 Polygons			
Feb 18	T	9.3 Perimeter and Area *GP 6 (Streets)*	9.1	1–18, 19–35 odd (omit 25) , 37, 41–47 odd	32
Feb 20	Th	**BIBLE CONFERENCE**			
Feb 25	T	9.4 Volume and Surface Area *GP 7 (Fish Tank)*	9.2	1–10, 11–31 odd	21
Feb 27	Th	9.5 Dimensional Analysis *GP 8 (On Holiday)*	9.3	1–19 odd, 25–31 odd, 37–41, 47, 49, 51, 61	23
Mar 4	T		9.4	1–15 odd, 19, 23, 29	11
Mar 6	Th	**Test 2–Geometry**	9.5	1–6, 17–31 odd, 41, 43, 47, 55, 57, 65, 67	21
Mar 11	T	12.1 Counting Methods			
Mar 13	Th	12.2 Counting Principle/13.1 Probability Theory *GP 9 (Experimental Probability)*	12.1	1–10, 13–21 odd, 25, 26, 31, 32, 33, 43–46	24
Mar 18	T	13.2 Complements/Unions	12.2	1–7 odd, 13–21 odd, 25, 33, 35-37	14
Mar 20	Th	13.3 Conditional Probability *GP 10 (Monopoly)*	13.1	1–9 odd, 12, 23a, 26–30, 39-44	18
Mar 24-28	M-F	**SPRING BREAK**			
Apr 1	T	14.1 Visualizing Data	13.2	1, 5–19 odd, 23–29 odd	13
Apr 3	Th	14.2 Central Tendency *GP 11 (Survey)*	13.3 14.1	1–17 odd, 23, 24, 31, 35–39, 41–51 odd 1–13 odd, 19–23, 29, 33	23 14
Apr 8	T	**Test 3–Probability and Statistics**	14.2	1–9 odd, 13, 17, 19, 21, 27, 29, 31, 35a, 37, 41	15
Apr 10	Th	8.1 Percents *GP 12 (Taxes)*			
Apr 15	T	8.2 Interest	8.1	1-33 odd, 37, 41, 47, 51a, 59, 61, 65	
Apr 17	Th	1.2 Reasoning *GP 13 (Debt)*	8.2	1-17 odd, 23, 37, 41, 45, 58	24
Apr 22	T	3.1 Statements, Connectives, Quantifiers	1.2	1–13, 17, 19, 28, 31, 35, 36, 40, 44	14
Apr 24	Th	3.2 Truth Tables	3.1	1–10, 11–47 odd, 59–62	21
Apr 29	T	3.3 Conditional and Biconditional *GP 14 (Logic)*	3.2	1, 3, 17, 19, 21, 25–39 odd, 42, 53, 57, 58	33
May 1	Th	**Test 4–Consumer Math and Logic**	3.3	1–13 odd, 17-25 odd, 33–37 odd, 41, 43, 45–48	17
May 8	Th	**Final Exam – 9:30 – 10:40 am**			