

MA 100 ~ Applied Mathematics

Spring 2023 Syllabus

Section: MA 100-1
Time/Room: TTh 12:00-12:50 P.M., AI 102
Th 10:00-10:50 A.M.
Instructor: Mr. Charles Lacey
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Office Hours: Daily by appointment:
<https://calendly.com/clacey-bju>

COURSE INFORMATION

Catalog Description

An introductory course in basic applied mathematics.

Textbook (required)

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

Supplemental Resources

Calculator: TI-30XS Multiview is suggested, but any type of calculator is permitted.
Microsoft Office Lens: a free app to convert handwritten work to PDF files
Microsoft Teams: free app offering chat, collaboration, and conferencing

Course 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

	The students will be able to...	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 using percentages	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.

Late or Missing Assignments

- Students are expected to turn in assignments on time and take quizzes and tests as scheduled for the class. Missing work will be given a grade of 0.
- Homework: Late homework will be accepted up until the unit test with a 50% penalty.
- Group Projects: Late group work will be penalized 10 percent per day.
- Chapter Tests: Missed chapter tests may be made up only in extreme circumstances with instructor approval.
- Students who are absent are personally responsible to obtain notes from fellow classmates.

Classroom Decorum

The classroom is a professional learning environment. Students are expected to be respectful and professional in behavior, attitude, attire, and use of technology. The instructor has the right to require students who are participating in distracting, inappropriate, or unprofessional behavior to leave the class.

Academic Honesty and Integrity Policy

BJU **academic integrity policy** is in effect (see <https://home.bju.edu/bju-policies/> for details).

Course Requirements

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 Projects

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 Project 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.

Evaluation and Grading

The course grade will consist of...

- Homework: 3 points per assignment; 70 total points
- Group Project: 10 points per assignment (13 assignments); 130 total points
 - These are closed-book, in-class group assignments.
- Chapter Tests: 75 points per chapter; 300 total points
- Final Exam: 150 points

Final grades will be assigned according to the standard 10 percentage point scale calculated out of the total points available during the semester (650+ points). Percentages will not be rounded up when determining final grades.

A 90-100%	B 80-89.9%	C 70-79.9%	D 60-69.9%	F <60%
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Copyright Policy:

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Tentative Class Schedule (dates subject to change)

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

