

MATH 1163 - Applied Mathematics

Fall 2019

MWF 2:30 – 3:20

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OC Mission Statement:

Oklahoma Christian University is a higher learning community that transforms lives for Christian faith, scholarship, and service.

Course Description: Exploration of various topics designed to give the student an appreciation of mathematics and to expose the student to mathematical problems within numerous disciplines. Topics include an introduction to set theory, geometry, simple modeling with personal finance, and elementary graph theory. Mathematical processes will be applied to financial, artistic, and social problems. Not intended for students majoring in science, nursing, mathematics, computer science, and business. Prerequisite: SDEV-0103 or a math ACT score of 23 or higher.

Integration of Faith and Learning: An understanding of mathematics is necessary to fully appreciate the elegance, symmetries, and patterns that we see in God's creation. The ability that each of us has to think, reason, and solve problems is a gift from the creator. This course will help each student develop those mathematical abilities, which in turn will make each student a more productive member of the kingdom. Galileo once stated, "*Mathematics is the alphabet with which God has written the universe.*"

Course Outcome	Assessment Tool	Program Outcome(s)	University Outcome(s)
Following this course, students will be able to:			
Organize and analyze information and groups of items in order to solve problems involving sets.	Homework Quizzes Exams	Knowledge	Foundational Knowledge, Structured Reasoning
Analyze how quantities change over time by computing exponential growth.	Homework Quizzes Exams	Knowledge, Problem Solving	Foundational Knowledge, Structured Reasoning, Critical and Creative Thinking
Calculate the spatial relationships that exist between objects in Euclidian and non-Euclidian geometry.	Homework Quizzes Exams	Problem Solving, Logic	Information Literacy, Structured Reasoning, Critical and Creative Thinking

Apply basic skills of personal finance for effective budgeting and long-term decision-making.	Homework Quizzes Exams	Knowledge, Problem Solving, Logic	Foundational Knowledge, Structured Reasoning, Information Literacy, Critical and Creative Thinking
Apply geometry and proportions to applications such as art and music.	Homework Quizzes Exams	Lifelong Learning, Knowledge, History	Foundational Knowledge, Structured Reasoning, Effective Communication
Explain and develop proficiency in the topics of basic graph and number theory.	Homework Quizzes Exams	Knowledge, Problem Solving, Logic	Foundational Knowledge, Structured Reasoning, Information Literacy, Critical and Creative Thinking
Utilize mathematical software and calculators.	Homework Exams	Technology	Foundational Knowledge, Information Literacy

Homework: Homework will be assigned over each section. Once each section is covered in class, homework should be completed prior to the next class meeting. However, homework will only be taken up and graded at the time of each test and the final exam.

Quizzes: Quizzes will constitute a significant portion of the student's grade. Most class periods will begin with a short quiz related to material that has been recently covered in class.

Exams: There will be three regular exams and one comprehensive final, as listed in the course schedule below. The final exam percentage will be used to replace the student's lowest test score, if applicable. Because of this policy, makeup exams will not be given for illness or other personal reasons. A makeup exam will be allowed for a student who misses a scheduled test due to participation in school sponsored events (athletics, music performances, etc.), as long as the student has made arrangements prior to the exam.

Textbook: Viewing Life Mathematically: A Pathway to Quantitative Literacy by Denley and Hall.

Calculator: Any scientific calculator.

Electronic Devices: Please refrain from using laptops, cell phones, and other mobile devices during class time. They only serve as a distraction to yourself and others in the class.

Texting: Since cell phone usage is not permitted during class, text messaging is also not allowed during class. ***Violations of this by texting during class may result in a student being asked to leave the classroom.***

Grading:

Course Requirements			Grading Scale	
4 Notebook grades	15	60	90 – 100%	A
Project		60	80 – 89%	B
3 Tests	100	300	70 – 79%	C
20 Quizzes	5	100	60 – 69%	D
Final Exam		150	0 – 59%	F
Total		670		

MASH: The Math And Science Help program (MASH) is located on the second floor of the library through the Student Success Center (MLC 219). The center provides (*free!*) tutoring for this course. Students are strongly encouraged to take advantage of this facility. Students having difficulty with course material may be *required* to spend time in the MASH center.

Appropriate Attire: Students are required to dress appropriately for class. A student who is inappropriately dressed may be dismissed from class to change into acceptable attire. A copy of the OC Dress Code can be found in the Student Handbook online.

Americans with Disabilities Act

If you have a diagnosed disability and need special accommodations, please notify Ms. Katy Roybal (425-1876) before or immediately after your first scheduled class meeting. After your disability has been verified, your instructor will work with you, with Ms. Roybal, and with the Office of the Vice President of Academic Affairs to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this course.

Sexual Misconduct Policy (Title IX)

Oklahoma Christian University is a Christian community unequivocally committed to ensuring a working and learning environment in which the dignity of every individual is respected and providing a campus environment that is free of unlawful discrimination, which includes sexual harassment, sexual assault, or sexual misconduct. OC's Sexual Misconduct Policy (see the OC Student Handbook) is compliant with Title IX, which states, "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Sexual harassment is a breach of community, which expresses disrespect, exploits and undermines relationships based on trusts, and interferes with learning and productive work.

Students are encouraged to immediately seek available assistance and report incidents of sexual misconduct as defined by the Sexual Misconduct Policy to either the Title IX Coordinator or one of the Title IX Deputy Coordinators listed below:

Title IX Coordinator

Ms. Tamie Willis

405.425.5320

tamie.willis@oc.edu

Students have access to confidential services through OC's Counseling Center and the Spiritual Life office.

OC Counseling Center

405.425.5250

Spiritual Life

Jeff McMillon, Dean of Spiritual Life

405.425.5919

Summer Lashley, Ethos Director

405.425.5908

Inclement weather policy

In very rare cases, weather, or some other similar event, makes it impossible to give the final exam at the scheduled time. In this event, if it is not possible or reasonable to reschedule the final exam, the final grade for the course will be determined without including a score for the final exam.

Campus Closing Policy from the Academic Policy Manual:

Because a large majority of OC's students live on or very near the campus, and because most professors also live very near, it is the policy of the University not to suspend classes for bad weather conditions unless their severity poses unnecessary risk to faculty, staff and students. Students who are prevented from meeting a class because of road conditions should notify their professors as to the cause of their absence, and the professor will treat the absence as being for an acceptable reason.

Emergency statement

In case of an emergency, faculty, staff, and students who have signed up for OC Campus Messenger (oc.edu/notify) will be notified by text, email, or Twitter. If the emergency occurs during class, the instructor will inform the students present of the appropriate procedures.

Oklahoma Christian University Policy on Academic Honesty**Cheating**

Cheating on an examination, assignment, roll sheet or other course related work or activities undermines the ethics of the academy and the specific Christian purposes of Oklahoma Christian University. Accordingly, students who cheat on examinations, assignments or other course related work or activities will face serious consequences, as outlined in this policy.

Plagiarism

One particular form of cheating is plagiarism. Plagiarism is the transmission of another's ideas, words, or materials as one's own and/or the failure to credit accurately the ideas, words, or materials of another. Plagiarism also includes passing off another's work (a friend, a parent, a website) as one's own. Plagiarism undermines the ethics of the academy and the specific

Christian purposes of Oklahoma Christian University. Accordingly, students who engage in plagiarism in assignments submitted will face serious consequences, as outlined in this policy.

Penalties for Academic Dishonesty

1. On the first offense, the student will receive zero (0) credit for the examination or assignment. For forms of cheating or dishonesty other than on examinations or assignments, the Professor shall have the discretion to impose an appropriate penalty. Professors must send documentation of the first offense to the appropriate chair, the dean of the appropriate college, the Chief Academic Officer, and the Dean of Students.
2. On the second offense in the same course, the student will receive an F in the course. Professors must send documentation of the second offense to the appropriate chair, the dean of the appropriate college, the Chief Academic Officer, and the Dean of Students.
3. At either the first offense or second offense, the student may appeal using the process described in both the *OC Student Handbook* and the *OC Academic Policy Manual* covering Grade Appeals.
4. If the student commits offenses in two or more courses, the Academic Appeals Committee, described in the *OC Student Handbook* and in the *OC Academic Policy Manual*, may assign penalties for academic dishonesty in addition to the penalties assigned by the professors in the courses. The Academic Appeals Committee may impose penalties up to and including suspension from the University in instances where a student has engaged in cheating or plagiarism in two or more courses. The Academic Appeals Committee will inform the Chief Academic Officer and the Dean of Students in writing of any penalties imposed by it and will report annually on its activities to the University's Academic Affairs Committee.
5. Professors should maintain the highest standards of academic honesty both in and out of the classroom. Professors must report and apply the rules regarding cheating/plagiarism to the appropriate channels. The student should be referred to the Oklahoma Christian University Covenant for principles which should guide conduct in these matters.

Copyright Notice:

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Course Schedule

Date	Topic(s)	Homework
Week 1	Syllabus	
	1.1 Thinking Mathematically	1-25 skip x3
	1.2 Problem Solving: Processes and Techniques	3-30 do x3
Week 2	1.3 Estimating and Evaluating	1-24 skip x3
	2.1 Set Notation	1-59 skip x3
Week 3	2.2 Subsets and Venn Diagram	1-25 skip x3
	2.3 Operations with Sets	1-41 skip x3
Week 4	2.4 Applications and Survey Analysis	1-19 skip x3
	5.4 Exponential Growth	1-13
Week 5	Review	
	Test 1	
Week 6	6.1 Everyday Geometry and Applications	1-43 skip x3
	6.2 Circles, Polygons, Perimeter, and Area	1-25 skip x3
Week 7	6.3 Volume and Surface Area	1-17 skip x3
	9.1 Understanding Personal Finance	1-17 skip x3
Week 8	9.2 Understanding Interest	1-26 skip x3
	9.3 Saving Money	1-19 skip x3
Week 9	9.4 Borrowing Money	1-22 skip x3
	House Project	
	Review	
Week 10	Test 2	
	11.1 Applications of Geometry to the Arts	1-22 skip x3
	11.2 Tiling and Tessellations	1-17 skip x3
Week 11	11.3 Mathematics and Music	1-17 skip x3
	13.1 Introduction to Graph Theory	1-28 skip x3
Week 12	13.2 Trees	1-23 skip x3
	13.4 Planar Graphs	1-19 skip x3
	Review	
Week 13	Test 3	
	14.1 Prime Numbers	1-31 skip x3
Week 14	14.2 Modular Arithmetic	1-44 skip x3
	10.1-10.4 Voting and Apportionment (tentative)	
	Review	
	Final Exam¹	

¹ University policy is that no final exams may be given early.