

**FINITE MATHEMATICS**  
**MGF 1106**  
**3 Credit Hours**

**Course Syllabus**

This course is part of the University of South Florida's Foundations of Knowledge and Learning Core Curriculum. It is certified for Mathematics and Quantitative Reasoning and for the following dimensions: Critical Thinking, Inquiry-based Learning, Scientific Process, and Quantitative Literacy.

**REQUIRED TEXT & SUPPLEMENTAL RESOURCES:**

1. *Topics in Contemporary Mathematics*, USF 9<sup>th</sup> Edition, by Bello, Britton, & Kaul
2. **WebAssign** (Online Homework). To register you will need the access code which is in the booklet that comes shrunk-wrapped with the purchase of a new textbook from the USF bookstore. If you have a used book you can purchase the WebAssign code with a credit card during the registration process or by buying a prepaid registration at the bookstore..

The USF Tampa Campus Bookstore has these requirements.

**MATH PREREQUISITES:**

C (2.0) or better in MAT 1033, or SAT Math score of 440 or better, or ACT Math Score of 19 or better, or Elementary Algebra CPT score of 72 or better.

**COMPUTER REQUIREMENTS:**

Must have internet access (preferably a high speed connection). Your computer must be at least a 500 MH processor with the necessary java plug-ins. You can use the Browser Wizard on the USF Academic Computing site (<https://my.usf.edu>) to verify if you have the necessary plug-ins.

**TECHNICAL REQUIREMENTS:**

Be able to work with the following hardware applications on a **PC**:

- Save files
- Locate files
- Register for online resources
- Add plug ins
- Problem solve technology issues
- Contact and work with Technology help desk personnel

Be familiar with the following types of software:

- Web browser
- Blackboard
- Search engine

- E-mail
- Discussion boards

**CALCULATOR:** A scientific calculator is required for this course. You should not need a graphing calculator, but you are allowed to use one. You are not allowed to use a cell phone as a calculator. Cell phones must be turned off and out of visual sight for all classes and tests.

**GORDON RULE/GENERAL EDUCATION:**

This course fulfills 3 hours of the Gordon Rule Computation requirement and also 3 hours of the General Education Quantitative Methods requirement, provided a grade of C-minus or better is achieved.

**CLAST:** The topics in this course are representative of many of those on the Mathematics subtest of the CLAST (College Level Academic Skills Test).

**COURSE DESCRIPTION:**

This course features topics that demonstrate basic mathematical ideas used to analyze and problem solve questions of individual or societal need. Topics include Mathematical Logic, Sets, Counting Techniques, Probability, Statistics, and Geometry.

**COURSE CONTENT:**

Chapters 1.1, 2, 3, 8, 10, 11, and 12 of the text will be covered.

- Chapter 1.1: Problem Solving – Patterns
- Chapter 2: Sets
- Chapter 3: Logic
- Chapter 8: Geometry
- Chapter 10: Counting Techniques
- Chapter 11: Probability
- Chapter 12: Statistics

**COURSE OBJECTIVES:**

**Knowledge:**

1. Students will understand and apply the appropriate *formula* for set operations including union, intersection, complement, and set difference when solving problems involving sets.
2. Students will understand, apply, and *interpret* Venn diagrams when solving applications involving two or more sets.
3. Students will understand, write, and *explain* symbolic logic when working with conjunctions, disjunctions, and conditional compound statements.
4. Students will understand, apply, and *interpret* truth tables and Euler diagrams in determining the validity of a statement or argument.

5. Students will understand and apply the appropriate *formulas* for calculating distances, areas, and volumes when solving metric geometry problems.
6. Students will understand, construct, and *interpret* information involving bar, line, and circle graphs in an application setting.
7. Students will understand and apply the appropriate use of the *formulas* for permutations, combinations, and/or the fundamental counting principle when solving problems involving counting methods.
8. Students will understand, apply, and *interpret* the outcomes to problems involving the probability and/or the mathematical odds of the occurrence of an event.
9. Students will understand and apply the appropriate *formula* for calculating the mean, median, mode, range, and standard deviation when analyzing a set of data.
10. Students will understand, interpret, and *explain* the appropriate outcome when solving a problem involving normally distributed data.

**Skills:**

Students will develop skills in the following areas:

1. critical thinking
2. inquiry
3. problem-solving
4. self-assessment
5. communication

**STUDENT OUTCOMES:**

Students successfully completing MGF 1106 will:

1. in Knowledge Objectives 1, 5, 7, and 9, be able to correctly apply the appropriate *formula* for solving a problem from a given set of information involving the topics of sets, geometry, counting methods, or statistics.

For Example: Given a set of data, the student will be able to compute the mean, median, mode, range, and standard deviation.

2. in Knowledge Objectives 2, 4, 6, and 8, be able to correctly *interpret* outcomes for solving applications involving Venn diagrams, truth tables, Euler diagrams, bar graphs, line graphs, and circle graphs.

For Example: Given the argument with premise statements, “All USF graduates are ambitious, and Joe is a USF graduate,” the student will be able to infer a valid conclusion to the argument.

3. in Knowledge Objectives 3 and 10, be able to correctly *explain* symbolic logic and information pertaining to normally distributed data.

For Example: Given a set of SAT scores that are normally distributed, the student will be able to use their knowledge of z-scores to explain why a verbal score of 420 may or may not be better than a math score of 380.

4. in Skill Objective 1, be able to *apply* critical thinking when interpreting the results to the calculations of the formulas associated with the topics in this course.

For Example: Given the odds in favor of winning a certain amount of money in a game of chance, the student will be able to compute the probability of the event and interpret whether or not the mathematical odds would be in his favor.

5. in Skill Objectives 2 and 3, be able to *identify* and use the steps necessary for inquiry and appropriate problem-solving techniques when solving applications involving the topics in this course.

For Example: Given a pattern or sequence and asked to find the next one in the sequence, the student will be able to use inductive reasoning to apply the “RSTUV” method for solving the problem. (R, read the problem several times; S, select the unknown; T, think of a plan; U, use the techniques being studied to carry out the plan; and V, verify the answer)

6. in Skill Objective 4, be able to *identify* what they have learned and what they are still unsure of in the various topics of this course.

For Example: Given the topic, “sets”, the student will be able to construct a concept map to identify what concepts they learned and understand regarding finite sets and what concepts they still don’t comprehend.

7. in Skill Objective 5, be able to *explain* both in written and oral form the processes associated with solving applications in this course.

For Example: Given a set of data regarding a proposed budget, the student will be able to use the information to construct a circle graph and explain the outcomes in both written and oral formats.

### **COURSE DESIGN:**

**Lecture Class** is a large group that meets twice a week for 1 hr. and 15 min. each time. The lecture instructor will do the following:

1. Present the course material
2. Practice problems with students

**Small Group Sessions** meet once a week for 75 min. each time. The T.A. will do the following:

1. Take attendance
2. Answer homework questions on the odd problems in the textbook (see list at the end of the syllabus) and practice problems.

**Graded Homework** will be completed on an Internet-based site called WebAssign.

- **Departmental Final Exam (25%)**

It will be a cumulative departmental exam and *all* questions will be multiple choice.

Your instructor will notify you of its location during the last week of classes.

***Time Conflicts with the scheduled Final Exam time:***

1. Students who normally work during the scheduled time of the final exam are expected to make arrangements with their employer to get time off.
2. Students who have another final exam scheduled during this same time period will be permitted to take a makeup. You must submit proof that a conflict exists.
3. Students who miss the exam for other reasons (serious illness, death in family, etc) will be considered on a case-by-case basis. In all cases verification of the student’s excuse will be required; make-ups will be permitted only for circumstances deemed beyond the student’s control. Students should contact their instructor *immediately* upon realizing they will miss the exam.

- **Chapter Tests and other assignments by the instructor (75%)**

**Final Grades:** The University's +/- grading policy will be used in assigning final grades. If your overall percentage of total points falls into the following range, you will receive the corresponding grade:

97-100 (A+)	93-96 (A)	90-92 (A-)
87-89 (B+)	83-86 (B)	80-82 (B-)
77-79 (C+)	73-76 (C)	70-72 (C-)
67-69 (D+)	63-66 (D)	60-62 (D-)
	0-59 (F)	

### **MISCELLANEOUS POLICIES:**

- Cheating will not be tolerated. The University policy on Academic Dishonesty is explained at the following website  
<http://www.ugs.usf.edu/catalogs/0506/adadap.htm>
- Students who must miss a class period due to a major religious observance must notify the instructor of this absence in writing by the second week of classes.
- Any student with a disability is encouraged to meet privately with the instructor during the first week of classes to discuss accommodations. The student must bring a current Memorandum of Accommodations from the Office of Student Disability Services (SVC 1133). This is a prerequisite for receiving accommodations. Exam accommodations through the Office of Student Disability Services require two weeks advance notice. All course handouts are available in alternate format if requested in the student's Memorandum of Accommodations. Note: If you need extra time on exams, you must make arrangements to take your exams with the SDS office. You cannot receive extra time or preferential seating if you choose to take your exams with the course instructor.
- Turn your cell phones and I-pods off and keep them out of visual site during the lecture sessions.
- You are encouraged to take notes and may tape the lectures, but neither your notes nor your tapes are to be sold.
- S-U Policy: Gordon Rule courses may **not** be taken on an S-U basis.
- A grade of "I" indicates incomplete work and will only be assigned when most of the coursework has already been completed with a passing grade. See the website <http://www.ugs.usf.edu/catalogs/0506/gradetc.htm> for further information.

### **GETTING HELP:**

- There is a **Student Solutions Manual** at the end of the textbook. It contains answers to all the odd-numbered problems.
- USF has a **website** for Finite Math with links to slide presentations, net cast videos, and practice tests at <http://mathcenter.usf.edu>
- Information regarding tutoring and/or computer availability is detailed online at the Blackboard Course Resources link.
- Arrange to meet your instructor.
- Academic Computing located on the 1<sup>st</sup> floor of the Tampa Campus library will be available for student technical support: (974-1222) in Tampa or toll-free (1-

866-974-1222 statewide), electronic mail ([help-ac@usf.edu](mailto:help-ac@usf.edu)), walk-ins and on-site services.

- **Free Math Tutoring in the Library 206...**  
The hours of operation are Mon-Thurs 10am – 9pm  
Fridays 10am – 4 pm.  
The main phone line: 974-2713  
Website: [www.usf.edu/learning](http://www.usf.edu/learning)

### **List of Recommended Homework from the Text book**

**Answers to the odds and the Chapter Practice Tests can be found at the end of the text book in the attached student solutions manual.**

#### **Ch 1**

**1.1:** 11, 13, 17, 19, 29, 31, 39

#### **Ch 2**

**2.1:** 1, 3, 5, 7, 9, 11, 13, 25, 26, 27, 31, 33, 35, 37, 39, 41, 43, 47, 49, 51, 53, 59, 61, 67, 69, 70

**2.2:** 1, 2, 3, 7, 15, 17, 19, 23, 25, 29, 31, 33, 35, 37, 39, 43, 45, 51, 55, 57, 83, 87, 89, 91, 93

**2.3:** 3, 5, 9, 11, 15, 17, 19, 23, 25, 27, 29, 33, 35, 36, 37, 41, 43, 45, 47, 61, 63, 65

**2.4:** 1, 3, 5, 7, 9, 11, 13, 15, 17, 21, 23, 25, 27, 29, 31, 32, 33, 34

**Chapter 2 Practice Test** Problems 1-20.

#### **Ch 3**

**3.1:** 1 thru 21 odd, 27 thru 57 odd

**3.2:** 1, 3, 7, 13, 15, 17, 21, 23, 27, 29, 31, 35, 37, 39, 41, 43, 45, 51

**3.3:** 3, 5, 7, 9, 11, 13, 17, 21, 23, 25, 29, 31, 35, 37, 49, 51, 53, 55, 61, 67

**3.4:** 1, 3, 7, 9, 11, 13, 15, 27, 29, 31, 35, 37, 39, 43, 45, 47, 49, 51

**3.5:** 1, 9, 11, 13, 17, 19, 21, 25, 27, 29, 31, 33, 57, 58, 59

**3.6:** 1, 3, 7, 11, 17, 21, 23, 37, 39, 41, 43

**Chapter 3 Practice Test:** Problems 1 thru 24.

#### **Ch 8**

**8.1:** 27 thru 65 odd

**8.2:** 9 thru 39 odd, 47, 49, 51, 53

**8.3:** 1 thru 31 odd, 39

**8.4:** 1 thru 33 odd, 39, 41, 47

**8.5:** 9, 11, 15, 17, 21, 25, 27, 31, 33, 35, 39, 47, 49, 50, 51

**Chapter 8 Practice Test:** 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20

#### **Ch 10**

**10.1:** 1, 5, 7, 9, 11, 13, 17, 19, 21, 23, 27, 29, 42, 43

**10.2:** 1, 5, 9, 11, 13, 15, 21, 23, 25, 27, 29, 33, 35, 37, 39, 41, 43

**10.3:** 3, 7, 15, 21, 23, 25, 27, 33

**10.4:** 1, 7, 9, 11, 13, 15, 17, 25

**Chapter 10 Practice Test:** 1 thru 25 EXCEPT 12, 19, 24, and 25

#### **Ch 11**

**11.1:** 1 thru 19 odd, 25, 27, 29, 31, 33, 35

**11.2:** 1, 3, 5, 10, 11, 13, 15, 17, 22, 23, 25,

**11.3:** 1 thru 19 odd, 21, 27, 29, 31, 40, 41, 42

**11.4:** 1, 3, 5, 9, 11, 13, 15, 19, 23

**11.5:** 3, 5, 7, 11, 19, 23, 25

**11.6:** 1, 3, 5, 7, 9, 11, 15, 17, 19, 23, 25, 27, 29

**Chapter 11 Practice Test:** 1 thru 20 except 14.

**Ch 12**

**12.1:** 3, 5, 17, 25, 29

**12.2:** 1, 3, 5, 11, 13, 15, 17, 25 thru 29, 31, 35

**12.3:** 1, 9, 11 (skip e and f), 15, 17, 27

**12.4:** 1, 3, 5, 7, 9, 13, 15, 17, 19, 21, 23, 25, 29, 31, 33, 41, 43

**12.5:** 1, 3, 7, 11, 17, 21, 25, 33, 39, 47, 51

**12.6:** 3, 5, 7, 19, 21, 27, 28

**12.7:** 1, 3, 5, 7, 11, 15, 17, 18

**Chapter 12 Practice Test:** 1, 2, 3a, 4 thru 24 (approximate the line of best fit)