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| **PROFESSOR:** | **PHONE NUMBER:** |
| **OFFICE LOCATION:** | **E-MAIL:** |
| **OFFICE HOURS:** | **SEMESTER:** |

1. **COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:**

**Mhf 2191 Mathematical foundations (3 CREDITS)**

This course is an introduction to axiomatic systems and techniques of proof, in preparation for study of upper-level mathematics. Emphasis is on preparing the student to read and write mathematical proofs, and to work with abstract definitions and axioms. It is a core requirement for the Secondary Education in Mathematics Degree. It is intended to provide the future mathematics teacher with in-depth background knowledge.

1. **PREREQUISITES FOR THIS COURSE:**

Mac 2312 with minimum grade of “C”

**CO-REQUISITES FOR THIS COURSE:**

None

1. **GENERAL COURSE INFORMATION:** Topic Outline.

* Symbolic logic
* Boolean algebra
* Set theory
* Countable and uncountable sets
* Techniques of proof
* Functions and relations
* Mathematical induction
* Group axioms

1. **All courses at Florida SouthWestern State College contribute to the general education program by meeting one or more of the following general education competencies:**

**C**ommunicate clearly in a variety of modes and media.

**R**esearch and examine academic and non-academic information, resources, and evidence.

**E**valuate and utilize mathematical principles, technology, scientific and quantitative data.

**A**nalyze and create individual and collaborative works of art, literature, and performance.

**T**hink critically about questions to yield meaning and value.

**I**nvestigate and engage in the transdisciplinary applications of research, learning, and knowledge.

**V**isualize and engage the world from different historical, social, religious, and cultural approaches.

**E**ngage meanings of active citizenship in one’s community, nation, and the world.

**A.**  **General Education Competencies and Course Outcomes**

1. Listed here are the course outcomes/objectives assessed in this course which play an integral part in contributing to the student’s general education along with the general education competency it supports.

General Education Competency: **Evaluate**

Course Outcomes or Objectives Supporting the General Education Competency Selected:

* Acquire mathematical literacy in understanding and formulating mathematical proofs and arguments. Identify types of proofs. Determine and apply appropriate mathematical and computational methods, models, principles and algorithms in order to solve mathematical problems related to the selection of topics listed in the “General Course Information: Topic Outline” of this Syllabus, interpret and represent results.

**B.** **Other Course Objectives/Standards**

* At the conclusion of this course, students will be able to demonstrate the following additional competencies:
* Construct and develop logical arguments using symbolic logic.
* Complete operations using Boolean algebra.
* Apply the rules of set theory.
* Discriminate between countable and uncountable sets.
* Identify types of proof; evaluate given proofs for completeness and validity.
* Formulate proofs.
* Adapt the method of mathematical induction to particular proofs.
* Analyze group axioms.
* Discriminate between functions and relations; determine whether a function is one-to-one and/or onto; apply different methods to create new functions from given functions.
* Analyze equivalence relations and form equivalence classes.
* Complete operations with indexed families of sets.

1. **DISTRICT-WIDE POLICIES:**

**Programs for Students with Disabilities**

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College’s guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at <http://www.fsw.edu/adaptiveservices>.

**REPORTING TITLE IX VIOLATIONS**

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct.  Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at [equity@fsw.edu](mailto:equity@fsw.edu).  Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online.  Additional information and resources can be found on the College’s website at <http://www.fsw.edu/sexualassault>.

1. **REQUIREMENTS FOR THE STUDENTS:**

List specific course assessments such as class participation, tests, homework assignments, make-up procedures, etc.

1. **ATTENDANCE POLICY:**

The professor’s specific policy concerning absence. (The College policy on attendance is in the Catalog, and defers to the professor.)

1. **GRADING POLICY:**

Include numerical ranges for letter grades; the following is a range commonly used by many faculty:

90 - 100 = A

80 - 89 = B

70 - 79 = C

60 - 69 = D

Below 60 = F

(Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

1. **REQUIRED COURSE MATERIALS:**

(In correct bibliographic format.)

1. **RESERVED MATERIALS FOR THE COURSE:**

Other special learning resources.

1. **CLASS SCHEDULE:**

This section includes assignments for each class meeting or unit, along with scheduled Library activities and other scheduled support, including scheduled tests.

1. **ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:**

(Which would be useful to the students in the class.)