MGF 1106 – Topics in Mathematics

COURSE SYLLABUS

GENERAL INFORMATION

Section Numbers: 38569
Meeting Times: 9:30 AM to 10:45 AM – Monday and Wednesday – (16 weeks)
Location: SMPF – 221
Credits: 3
Term: Spring 2013

INSTRUCTOR INFORMATION

Instructor: Mr. Thomas Carty
Office: Adjunct Instructors’ Offices – Room 122 or 222
Office Hours: Monday and Wednesday: 9:00 AM to 9:30 AM
12:15 PM to 12:45 PM
3:40 PM to 4:20 PM
Telephone: (C) 215.534.5182
E-mail: tcarty2@hccfl.edu
Web page: http://www.hccfl.edu/faculty-info/tcarty2.ASPX
or
www.hccfl.edu→HCC Directory→Employee’s Last Name: “carty”→Click to Search→Homepage

Course Description

Topics will include finite and infinite sets, logic, deductive and inductive reasoning, geometry, counting methods, probability and statistics. Studying these topics will develop a broader base of mathematical knowledge. This course may be used to satisfy part of the mathematics general education requirement for the associate in arts degree. This course may be waived with a grade of “C” or better in any course with a prefix MAD, MAP, MAS or MAC.

Prerequisites: MAT 1033 or MAT 1035 with a grade of “C” or better, or appropriate score on HCC placement test.

Course Objectives

Upon completion of this course students should be able to:

I. Sets
   1. Deduce facts of set inclusion or set non-inclusion from a diagram.
   2. Use set operations, including union, intersection, complement, and set difference.
   3. Demonstrate knowledge of infinite sets and their characteristics as contrasted with finite sets.
   4. Solve problems using Venn diagrams.
   5. Solve problems involving the application of sets.
II. Logic
1. Identify statements.
2. Create truth tables.
3. Solve problems involving the conditional.
4. Identify statements equivalent to the negations of simple and compound statements.
5. Determine equivalence or nonequivalence of statements.
6. Draw logical conclusions from data.
7. Recognize that an argument may not be valid even though its conclusion is true.
8. Recognize valid reasoning patterns as illustrated by valid arguments in everyday language.
9. Select applicable rules for transforming statements without affecting their meanings.
10. Draw logical conclusions from a list of premises.
11. Use Euler Diagrams and truth tables to determine validity of an argument.

III. Geometry
1. Calculate distances, areas, and volumes.
2. Identify and use relationships between angle measures to find missing angles.
3. Classify simple plane figures by recognizing their properties.
4. Recognize and use similar triangles and their properties to find missing information.
5. Identify appropriate units of measurement for geometric objects.
6. Infer formulas for measuring geometric figures.
7. Select applicable formulas for computing measures of geometric figures.
8. Solve real-world problems involving perimeters, areas, and volumes of geometric figures.
9. Solve real-world problems involving the Pythagorean Theorem.

IV. Counting Methods and Probability
1. Use counting methods to count by systematic listing.
2. Use permutations and combinations.
3. Use the fundamental counting principle.
4. Identify the probability of a specific outcome in an experiment.
5. Identify and list a sample space for an experiment and compute the probability of a specific outcome.
6. Identify independent and mutually exclusive events.
7. Solve problems using the addition and multiplication rules of probability.
8. Solve problems using the complement formula for probability.
9. Determine the odds in favor of or against an event.
10. Determine conditional probability.
11. Calculate mathematical expectation.

V. Statistics
1. Identify information contained in bar, line, and circle graphs.
2. Determine the mean, median, and mode of a set of numbers.
3. Recognize properties and interrelationships involving the mean, median, and mode in a variety of distributions.
4. Solve problems dealing with range and standard deviation in a variety of distributions.
5. Infer relationships and make accurate predictions by studying statistical data.
6. Interpret real-world data involving frequency and cumulative frequency tables.
7. Use the normal curve to solve problems.
8. Understand the idea of correlation.

Course Materials

Text:  
*Mathematical Ideas* (12th Ed.) by Miller, Heeren and Hornsby.

General Information: Students are required to use MyHCC and to check their HCC email for this course.

Calculator: Scientific or graphing calculators are required for this course. However, students will be expected to be able to solve some problems without the use of a calculator.
**Worksheets:** All worksheets, if used, will be available from the web page for this course. Students are responsible for printing copies and bringing them to class. Copies will not be available in class.

**Graded Assignments**

**Tests:** There will be five unit tests, plus the final exam. Of the five unit tests, the lowest grade will be dropped. If less than five unit tests are given due to unforeseen events, then the lowest grade will not be dropped.

If you are unable to attend class on the day of the test, please inform me through an email or text message prior to the test. A make-up copy of the test will be submitted to the Test Center and it is your responsibility to schedule a make-up date and time. For more information, please review the Make-Up Policy section of this syllabus.

**Quizzes:** The quizzes will be given at the end of the semester. The format is five 5-point quizzes presented by 25 multiple choice questions. It will be open notes/text and will cover the material from the semester. The two lowest quiz scores will be dropped.

**Homework/Class work:** For every section that we do in class, there will be homework problems assigned. The list of the homework problems is included in the document “Lesson Schedule and Homework Assignments.” This document can be viewed and copied from the web page.

Homework may be completed using pencil and paper or through the textbook publisher’s MathXL web site, [www.mathxl.com](http://www.mathxl.com), if the homework problems are sufficient from the web site. The procedure for setting up an account to use this resource is in the document, “How to Register and Enroll in Your MathXL Course.” (Can be viewed and copied from the web page.)

All homework assignments will be collected on the day of each test. The problems must be in order, neat, legible, and **not** stapled. Your name must be on every page of the assignment. All work must be shown in order to receive credit for each problem. The assignments must be ready to hand in at the beginning of the class. A 25% deduction in points may be assessed by the instructor for each homework assignment that is turned in late. The lowest homework grade of the four will be dropped.

**Paper torn out of a spiral notebook will not be accepted.**

If doing only the assigned problems is not enough to comfortably comprehend the topic, students are encouraged to do more than the assigned problems. Please ask for help when needed, in and out of class.

**Final Exam:** The final exam is cumulative and it cannot be made up.

**Grading Procedures**

**Calculation of Final Grade**

- **Tests:** 60%
- **Quizzes:** 10%
- **Homework:** 10%
- **Final Exam:** 20%
Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100% to 90%</td>
</tr>
<tr>
<td>B</td>
<td>89% to 80%</td>
</tr>
<tr>
<td>C</td>
<td>79% to 70%</td>
</tr>
<tr>
<td>D</td>
<td>69% to 60%</td>
</tr>
<tr>
<td>F</td>
<td>0% to 59%</td>
</tr>
</tbody>
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Course Policies

Attendance Policy

Attendance will be taken for this course. Each student is required to sign the Attendance Sheet located at the front of the class. This is the record used to validate attendance matters. If you arrive late to class, be sure to sign the Attendance Sheet before leaving class. If you are unable to attend a class, you are required to email or text the instructor at the referenced email address on the front page of this syllabus.

- Students receiving financial aid are advised to discuss with a Financial Aid Advisor the impact of not attending class on their financial aid or veterans benefits.

Attending all classes and being on time are critical to your success. Copies of the Lesson Presentations will be available on the web page if you miss class or need to review the notes. However, there is no substitute for being in class to learn the material, to participate in class, and to be able to ask questions when they arise. Please commit to attending all classes.

Make-Up Policy

- All tests will be administered on the dates listed in the Lesson Schedule and Homework Assignments document, unless otherwise announced.
- Students are responsible for being present for all tests, quizzes, and examinations.
- Students who must miss a test because of an emergency, illness or religious observance, should inform the instructor in advance by email. A copy of the make-up test will be submitted to the Test Center (STPH – MOD 8). It is your responsibility to schedule an appointment for the make-up test by visiting the Test Center or by email, sstestcenter@hccfl.edu (phone appointments are not acceptable). On the day of the make-up test, you will be required to sign in at the computer in the reception area and you must present a photo ID. Cell phones, personal listening equipment, etc. are not permitted in the testing area.
- Students who miss a test without notifying the instructor will receive a zero grade.
- It is highly recommended that you make up any missed test as soon as possible.
- By **8:00 PM on Thursday, May 2, 2013**, all make-up tests and missing homework assignments must be submitted. A zero will be earned for all tests/assignments not received by that date.
Classroom Conduct Policy

Common courtesy, respect for others, and professionalism are expected behaviors from everyone.

Cell phones must be silenced and not out during the class. This includes texting.

Personal listening devices are not to be used during class.

If you are tired, please do not sleep in class. Stay home and get the required rest you need.

If you arrive late to class or need to leave early, please do so quietly.

Violation of any of the above policies will result in the student being asked to leave class for the evening.

College Policies

Academic Dishonesty

Academic dishonesty includes the following actions, as well as other similar conduct aimed at making false representation with respect to the student's academic performance:

- Cheating on any assignment and/or assessment.
- Collaborating with others on assignments that are presented as your individual work. (This does not include group or collaborative assignments).
- Submitting, work previously submitted in another course, unless specifically approved by the instructor,
- Plagiarism-- Academic work, submitted by students is assumed to be the result of their own thought, research or self-expression. When students borrow ideas, wording or organization from another source they are expected to acknowledge that fact in the appropriate manner. Failure to do is considered plagiarism.
- Knowingly assisting another student in any of the above actions.

Academic Dishonesty is unacceptable in this class. It may result in actions ranging from a zero grade on a specific test or assignment to dismissal from class, academic program or from the college.

Important Dates and Withdrawal Policy

This course begins on Monday, January 7, 2013 and ends on Monday, May 6, 2013. The add/drop period for this course ends on Friday, January 11, 2013. The last day to withdraw from a College course with a "W" grade is Wednesday, March 13, 2013. It is the responsibility of the student to complete and submit the necessary forms to the Registrar's Office. An official withdrawal would entitle the student to a grade of "W" in the course. Students who do not withdraw by this date will receive the grade that they earned in the course.

Students who have received financial aid this semester should not drop or withdrawal from this class without first talking with an advisor in the financial aid department. Dropping or withdrawing may require you to repay the financial aid you received for this class, including all federal and state aid, both grants and loans. This is also true for Bright Futures and Pell Grant recipients.
HCC Educational Equity and Student Disability Policy

HCC is an equal access/equal opportunity institution that makes education-related decisions without regard to race, color, gender, religion, national origin, age, disability or marital status or any other bias that is or may be prohibited by law. In addition, the college does not discriminate in our admission and treatment of students. HCC is committed to equitable treatment of all students and to working towards a learning environment free of discrimination and harassment for current as well as future students. The college provides equal educational opportunities to qualified individuals with disabilities and complies with and fully supports the Americans with Disabilities Act of 1990.

On the SouthShore Campus, a student or prospective student, wishing academic accommodations, must self identify and provide appropriate documentation of their disability. Students are encouraged to begin this process at least one month prior to the start of the semester. To request academic accommodations, please contact Student Services at 813-253-7000 ext. 5703.