



## *MTSU ONLINE MATH 1010*

*SPRING 2009*

### *MATHEMATICS FOR GENERAL STUDIES*

*3 Credit Hours*

#### **Course Information**

##### **Course Description:**

Mathematics for General Studies. Three credits. Course satisfies the General Education Mathematics requirement and is also part of the mathematics sequence for students preparing to become elementary school teachers. Topics include logic, sets, algebraic reasoning, geometry, trigonometry, probability, statistics, and consumer mathematics.

##### **Prerequisites:**

Two years of high school algebra and a Math Enhanced ACT of at least 19 or DSPM 0850 or COMPASS placement.

##### **Course Objectives:**

The purpose of this course is to introduce the student to a wide variety of mathematical perspectives and topics. The course is designed to expand the student's appreciation of how mathematics applies to quantitative problems that originate in many fields, and the student will learn strategies for solving some of these problems. An introduction to logic will provide tools of deductive reasoning that are essential to not only mathematics, but also to other subjects and to daily life. The basic concepts of set theory will be introduced and used to analyze logical arguments. The student will encounter numeration systems, in particular the binary system and its relation to computing devices. Advanced topics in geometry will include such ideas as non-Euclidean geometry and right triangle trigonometry. Counting techniques, probability, and statistics will be introduced. The formulas of financial mathematics will be applied in problems related to the time value of money, installment and credit buying, and truth in lending.

##### **Course Learning Outcomes:**

Upon completion of this course, the student will have the abilities to:

- Use inductive reasoning to generate hypotheses from identifiable mathematical patterns, and use logical operators in applications of deductive reasoning.

- Apply processes of problem-solving in various mathematical connotations.
- Illustrate and prove set relationships using Venn diagrams and carry out combined set operations.
- Use concepts of logic and set theory to analyze logical arguments.
- Make conversions between the binary and decimal numeration systems, and show influences of earlier numeration systems.
- Distinguish between Euclidean and non-Euclidean geometries, and apply Euclidean postulates in solving geometrical problems.
- Use counting techniques to determine probability of given events.
- Generate descriptive statistics, including measures of central tendency, measures of dispersion and measures of position, for given data sets.
- Exercise financial management formulas in the consumer mathematics of installment loans and credit card usage.
- Use appropriate technology, such as a graphing calculator, in related mathematical applications.
- Conduct an individual project as assigned by the instructor, and prepare a report on assigned project.

## Course Topics:

### I. UNIT 1

#### A. Chapter 1: The Art of Problem Solving

- 1.1 – Solving problems by inductive reasoning
- 1.2 – An application of inductive reasoning: Number patterns
- 1.3 – Strategies for problem solving
- 1.4 – Calculating, estimating, and reading graphs

**(All Chapter 1 online homework and quiz assignments due by January 26<sup>th</sup>)**

#### B. Chapter 2: The Basic Concepts of Set Theory

- 2.1 – Symbols and terminology
- 2.2 – Venn diagrams and subsets
- 2.3 – Set operations and Cartesian products
- 2.4 – Surveys and cardinal numbers

**(All Chapter 2 online homework and quiz assignments due by February 2<sup>nd</sup> )**

#### C. Chapter 3: Introduction to Logic

- 3.1 – Statements and quantifiers
- 3.2 – Truth tables and equivalent statements
- 3.3 – The conditional (omit circuits)
- 3.4– More on the conditional
- 3.5– Analyzing arguments with Euler diagrams

**(All Chapter 3 online homework and quiz assignments due by February 11<sup>th</sup>)**

---

**UNIT 1 EXAM – Proctored exam (20 % of course grade) – Deadline for exam is February 17<sup>th</sup>.**

**\*Scheduled to be administered at MTSU in SAG 202 on February 17<sup>th</sup> at 7 p.m.**

---

## II. UNIT 2

### A. Chapter 4: Numeration and Mathematical Systems

- 4.1 – Historical numeration systems
- 4.2 – Arithmetic in the Hindu-Arabic system
- 4.3 – Conversion between number bases

**(All Chapter 4 online homework and quiz assignments due by February 23<sup>rd</sup>)**

### B. Chapter 9: Geometry

- 9.4 – The geometry of triangles: Similarity, and the Pythagorean Theorem
- 9.5 – Space figures, volume, and surface area
- 9.7 – Non-Euclidean geometry

**(All Chapter 9 online homework and quiz assignments due by February 27<sup>th</sup>)**

### C. Chapter 10: Trigonometry

- 10.4 – Right triangles and function values
- 10.5 – Applications of right triangles

**(All Chapter 10 online homework and quiz assignments due by March 17<sup>th</sup>)**

### D. Chapter 11: Counting Methods

- 11.1 – Counting by systematic listing
- 11.2 – Using the fundamental counting principle
- 11.3 – Using permutations and combinations

**(All Chapter 11 online homework and quiz assignments due by March 17<sup>th</sup>)**

---

**UNIT 2 EXAM – Proctored exam (20 % of course grade) – Deadline for exam is March 24<sup>th</sup>.**

**\*Scheduled to be administered at MTSU in SAG 202 on March 24<sup>th</sup> at 7 p.m.**

---

**COURSE PROJECT DUE – (10% of course grade) – Deadline for project is March 31<sup>st</sup> – April 3<sup>rd</sup>.**

---

## III. UNIT 3

### A. Chapter 12: Probability

- 12.1 – Basic concepts
- 12.2 – Events involving “not” and “or”
- 12.3 – Conditional probability: Events involving “and”

**(All Chapter 12 online homework and quiz assignments due by March 30<sup>th</sup>)**

### B. Chapter 13: Statistics

- 13.1 – Visual displays of data
- 13.2 – Measures of central tendency
- 13.3 – Measures of dispersion
- 13.4 – Measures of position

**(All Chapter 13 online homework and quiz assignments due by April 13<sup>th</sup>)**

### C. Chapter 14: Personal Financial Management

- 14.1 – The time value of money
- 14.2 – Installment buying
- 14.3 – Truth in lending

(All Chapter 14 online homework and quiz assignments due by April 20<sup>th</sup>)

---

**UNIT 3 EXAM – Proctored exam (20 % of course grade) – Deadline for exam is April 27<sup>th</sup>.**

**\*Scheduled to be administered at MTSU in SAG 202 on April 27<sup>th</sup> at 7 p.m.**

---

### **COURSE FINAL**

A proctored, comprehensive final must be taken to successfully complete the course. (20% of course grade)

**(All online final review homework assignments due by May 4<sup>th</sup>)**

**Deadline for FINAL EXAM is May 6<sup>th</sup>.**

**\*Scheduled to be administered at MTSU in SAG 202 on May 6<sup>th</sup> at 7 p.m.**

---

### **Testing Schedule for MTSU campus:**

UNIT 1 EXAM – February 17, 2009 in SAG 202 at 7 p.m.

UNIT 2 EXAM – March 24, 2009 in SAG 202 at 7 p.m.

UNIT 3 EXAM – April 27, 2009 in SAG 202 at 7 p.m.

FINAL – May 6, 2009 in SAG 202 at 7 p.m.

### **Specific Course Requirements:**

The online course is housed in MyMathLab in CourseCompass, and is powered by Blackboard™.

Course name: **MTSU ONLINE MATH 1010**

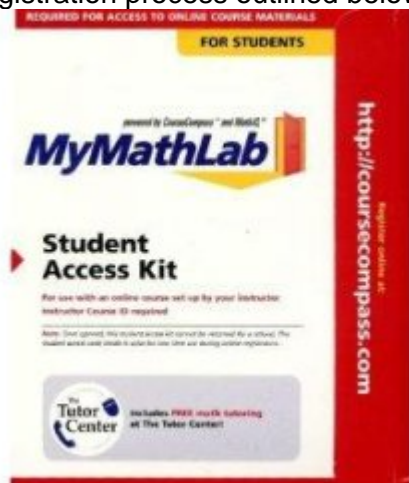
Course ID: **mccormick97794**

Access the course at [www.coursecompass.com](http://www.coursecompass.com)

### **Student Registration:**

The **Student Access Kit** is included with the purchase of a **new** textbook (you can also purchase a stand-alone access kit in the bookstore or online).

You will be offered the chance to purchase the Student Access Kit online as you follow through the registration process outlined below.



**To register:**

1. Go to [www.coursecompass.com](http://www.coursecompass.com).
2. Click the **Register** button below Students.
3. Make sure you have everything you need to register:
  - A Student Access Code (**Note**: the access code is located in Student Access Kit).
  - A valid e-mail address (your MTSU email address)
  - The Course ID: **mccormick97794**
  - Your school zip code: **37132**
4. Click **Next**.
5. Leave **No, I am a New User** selected. (**Note**: If you have previously registered for an online product published by Addison Wesley, Allyn & Bacon, Benjamin Cummings, Longman, or Prentice Hall, you may already have a Pearson Education account. Click **Yes, Look Me Up**, then enter your login name and password).
6. Enter the **Access Code** and your **School Zip or Postal Code** (**Note**: the access code is located in Student Access Kit).
7. Select your **School Country** from the drop-down list.
8. Click **Next**.
9. Enter the **Course ID**: **mccormick97794**
10. Click **Next**.
11. Enter your **First Name**, **Last Name**, and **E-mail Address**.
12. Select your **School Name** from the drop-down list.
13. Create a **Login Name** and **Password**, then re-type your password in the required field.
14. Select a security question from the drop-down list, then enter the answer.
15. Click the respective links to review the **license agreement** and the **privacy policy**.
16. Click **Next**.
17. Click the **print a copy** link to get a record of your login name and password (also, a confirmation email is sent).
18. Click the **Log In Now** button below CourseCompass.
19. Log in to CourseCompass using the login name and password you just created.
20. In the **Courses** area, click on the Course name to access required course materials.

### Inside My CourseCompass:

Use the links in the Courses and Announcements area to check for news from your professor, view the course syllabus, and to access textbook content. For Customer Technical Support, call Toll Free 1-800-677-6337, Monday through Friday 8 AM – 8 PM EST and on Sunday 5 PM – MIDNIGHT EST.

## Textbooks and Supplementary Materials

### Required Textbooks:

*Mathematical Ideas*, Miller, Heeren & Hornsby, 11<sup>th</sup> Edition (May purchase hardcopy OR use e-book in MyMathLab in CourseCompass.)

Must have Student Access Kit for MyMathLab The Access Kit is included in the purchase of a **new** textbook, or may be purchased as a stand-alone product at a bookstore or online.

### Supplementary Materials:

All calculator instruction in the course will be specific for the TI-83 or TI-84 Plus graphing calculator.

## Hardware/Software Requirements/Browser Information

### Hardware Requirements:

#### System Requirements

Please verify that your computer meets the minimum system requirements for this course. This product supports the following operating system and browser combinations:

| <b>With these operating systems:</b>   | <b>You can use these browsers:</b>  |
|--|---|
| Windows 2000, Windows XP, and Windows Vista <sup>™</sup><br>Mac and Linux <b>not</b> supported | Internet Explorer 6.0/7.0<br>(Netscape, Firefox, AOL, and other browsers <b>not</b> supported). |

### Basic requirements for all MyMathLab courses:

- **Internet connection:** Cable/DSL, T1, or other high-speed for multimedia content; 56k modem (minimum) for tutorials, homework, and testing.
- **Memory:** 64 MB RAM minimum
- **Monitor resolution:** 1024 x 768 or higher
- **Plug-ins:** You need certain plug-ins and players from the MyMathLab Installation Wizard (found inside your course)

## Instructor Information

**Instructor:** Dr. Nancy J. McCormick, Associate Professor

**Office:** Stark Agribusiness, SAG 122

**Phone:** 615.898.5763

**FAX:** 615.898.5762

**Email:** [nmccormi@mtsu.edu](mailto:nmccormi@mtsu.edu)

**Web site:** [www.mtsu.edu/~nmccormi](http://www.mtsu.edu/~nmccormi)

**Office Hours:** Please call or email to make an appointment.

### Lab Resource:

**Math Help Lab (KOM 204)**

*Offers help for Math 1010, 1410, 1420, 1530, 1630, 1710, and Computerized APT Testing for Math 1410*

**Monday - Thursday 9:00A-4:30P**

**Friday 9:00A-3:00P**

### Library Resources:

James E. Walker Library: <http://library.mtsu.edu/>

Walker Library's Distance Learning site: <http://ulibnet.mtsu.edu/distance/>

## Assessment and Grading

### Testing Procedures:

All Unit Exams and the Course Final will be proctored exams and will be offered on-campus. Students may have exams proctored at any academic institution. If a student requires a testing location other than MTSU, then it is the student's responsibility to make arrangements for proctored testing at another academic institution. Please schedule tests according to respective test dates given below. Please notify the instructor immediately so that arrangements can be verified. For each test, students will be required to present a photo ID.

### Testing Schedule for MTSU campus:

UNIT 1 EXAM – February 17, 2009 in SAG 202 at 7 p.m.

UNIT 2 EXAM – March 24, 2009 in SAG 202 at 7 p.m.

UNIT 3 EXAM – April 27, 2009 in SAG 202 at 7 p.m.

FINAL – May 6, 2009 in SAG 202 at 7 p.m.

### Grading Procedure:

#### The course average will be determined as follows:

Online homework and quiz assignments – 10% of course average

Course Project – 10% of course average

Proctored Unit Exams (3) – 60 % of course average

Proctored Comprehensive Final – 20 % of course average

### Grading Scale:

100-90% course average---A

89-80% course average---B

79-70% course average---C

69-60% course average---D

Below 60% course average---F

## Assignments and Participation

### Course Project:

COURSE PROJECT (120 pts) – Completed project must be submitted (as a Microsoft Word document) – Due by March 31<sup>st</sup> – 10% of course average.

**Step 1:** Each student will choose a topic to research, and will discuss the topic with the instructor by January 30<sup>th</sup>.

Given below are some possible topics.

- Historical numeration systems, Egyptian, Chinese, and Hindu-Arabic, and historical calculation devices
- George Polya; Polya's problem-solving method
- Chaos and fractal geometry
- Blaise Pascal; patterns and uses of Pascal's Triangle
- The number pi and Euler's number
- Logic problems and sudoku

- *How to Lie with Statistics*, by Darrell Huff
- The Fibonacci sequence and the Golden Ratio
- Non-Euclidean geometries

**Step 2:** Submit a proposed outline, Microsoft Word document, for the written report by February 28<sup>th</sup>. (10 points)

**Step 3:** Submit a list of a minimum of 5 references on the topic by March 11<sup>th</sup>. (10 points)

**Step 4:** Submit completed informative report by March 31<sup>st</sup>. (100 points)

#### COURSE PROJECT CRITERIA:

##### 1. FORMAT:

- DOCUMENT: The report must be a Microsoft Word Document, submitted **electronically**.
- FONT: *Times New Roman*, 12 point.
- PAGE MARGINS: Set all page margins, top, left, right, and bottom, at **55 pt**.
- LENGTH: The body of the report must be **5-6 pages**, not including the reference page, of **double-spaced** type.

##### 2. GRADING CRITERIA FOR CONTENT: (60 points)

- Covers the topic.
- Complete and informative.
- Presented in an understandable, concise manner for a general audience.
- Shows the quality of research on the topic.
- Written in the student's own voice.
- Must be in the student's own words. Papers that contain any sentence, paragraph, etc. that has been plagiarized will receive a grade of zero. The student is expected to research the chosen topic thoroughly and to provide an informative report written for a general audience. (Student papers may be submitted by the instructor to [www.turnitin.com](http://www.turnitin.com) and/or other anti-plagiarism Web sites.)

##### 3. GRADING CRITERIA FOR MECHANICS: (35 points)

- Spelling
- Grammar
- Punctuation
- Sentence and paragraph structure
- Line spacing, font size, and margins

##### 4. GRADING CRITERIA FOR REFERENCES: (5 points)

- A minimum of five references listed on a separate reference page, inserted as the last page in the report.
- Each reference must be documented according the APA, 5<sup>th</sup> edition, style. View examples of various types of reference citations at <http://www.crk.umn.edu/library/links/apa5th.htm>

#### Class Participation:

Students are required on a twice-weekly basis to check Communication tools found in MyMathLab: Announcements, Discussion Board, and Messages. Students also need to remember to check course deadlines on a weekly basis and to be punctual in meeting the course requirements.

#### Punctuality:

It is very important for student success to not fall behind in the course. Given below is a listing of the deadlines for each course requirement. Please be sure to check it often and manage your time accordingly.

---

Chapter 1 Homework & Quiz Assignments – Due January 26<sup>th</sup>.  
Chapter 2 Homework & Quiz Assignments – Due February 2<sup>nd</sup>.  
Choice of topic for course project submitted – Due January 30<sup>th</sup>.  
Chapter 3 Homework & Quiz Assignments – Due February 11<sup>th</sup>.  
**UNIT 1 EXAM – Due February 17<sup>th</sup>.**

---

Chapter 4 Homework & Quiz Assignments – Due February 23<sup>rd</sup>.  
Submit an outline for course project – February 28<sup>th</sup>.  
Chapter 9 Homework & Quiz Assignments – Due February 27<sup>th</sup>.  
Chapter 10 Homework & Quiz Assignments – Due March 17<sup>th</sup>.  
Submit a list of 5 (minimum) references for course project – Due March 11<sup>th</sup>.  
Chapter 11 Homework & Quiz Assignments – Due March 17<sup>th</sup>.  
**UNIT 2 EXAM – Due March 24<sup>th</sup>.**

---

Chapter 12 Homework & Quiz Assignments – Due March 30<sup>th</sup>.  
**COURSE PROJECT – Due March 31<sup>st</sup> – April 3<sup>rd</sup>.**  
Chapter 13 Homework & Quiz Assignments – Due April 13<sup>th</sup>.  
Chapter 14 Homework & Quiz Assignments – Due April 20<sup>th</sup>.  
**UNIT 3 EXAM – Due April 27<sup>th</sup>.**  
Final Review Homework Assignments – Due May 4<sup>th</sup>.  
**FINAL EXAM – Due May 6<sup>th</sup>.**

---

**Testing Schedule for MTSU campus:**

UNIT 1 EXAM – February 17, 2009 in SAG 202 at 7 p.m.  
UNIT 2 EXAM – March 24, 2009 in SAG 202 at 7 p.m.  
UNIT 3 EXAM – April 27, 2009 in SAG 202 at 7 p.m.  
FINAL – May 6, 2009 in SAG 202 at 7 p.m.

All Unit Exams and the Course Final will be proctored exams and will be offered on-campus. Students may have exams proctored at any academic institution. If a student requires a testing location other than MTSU, then it is the student's responsibility to make arrangements for proctored testing at another academic institution. Please schedule tests according to respective test dates given above. Please notify the instructor immediately so that arrangements can be verified. For each test, students will be required to present a photo ID.

---

MTSU Academic Calendar  
**Spring Semester 2009**

- November 10-21, 2008 Early Registration
- January 15 Classes Begin
- January 19 Martin Luther King Holiday – no classes
- March 4 – Last day to drop with a “W”

- March 9-14 Spring Break
- April 22 – Last day to withdraw from classes with a “W” or “F”
- April 29 Last Day of Classes
- April 30 Study Day-no classes
- May 1-7 Final Examinations
- May 9 Commencement

## Communication Guidelines

### Email:

- Always include a subject line.
- Remember that without facial expressions some comments may be misinterpreted. Choose your words carefully when writing your emails. Use of emoticons might be helpful in some cases.
- Use standard fonts.
- Do not send large attachments without permission.
- Special formatting such as centering, audio messages, tables, html, etc. should be avoided unless necessary to complete an assignment or other communication.
- Respect the privacy of other class members

### Discussion Groups:

- Review the discussion threads thoroughly before entering the discussion. Be a reader and observer, then a discussant.
- Try to maintain threads by using the "Reply" button rather starting a new topic.
- Do not make insulting or inflammatory statements to other members of the discussion group. Be respectful of the ideas of others.
- Be patient and read the comments of other group members thoroughly before entering your remarks.
- Be cooperative with group leaders in completing assigned tasks.
- Be positive and constructive in group discussions.
- Respond in a thoughtful and timely manner.

### Chat:

- Introduce yourself to the other learners in the chat session.
- Be polite. Choose your words carefully. Do not use derogatory statements.
- Be concise in responding to others in the chat session.
- Be prepared to open the chat session at the scheduled time.
- Be constructive in your comments and suggestion

### Web Resources:

- [Columbia Guide to Online Style](#) by Janice R. Walker and Todd Taylor
- Citation Styles Online <http://www.bedfordstmartins.com/online/cite6.html>
- Copyright Issues [http://www.tbr.state.tn.us/general\\_counsel/ip/Copyright%20in%20DE.htm](http://www.tbr.state.tn.us/general_counsel/ip/Copyright%20in%20DE.htm)

## Library

MTSU's James E. Walker Library: <http://library.mtsu.edu/>  
Walker Library's Distance Learning site: <http://ulibnet.mtsu.edu/distance/>.

## SMARTHINKING Online Tutoring Service

SMARTHINKING is the leading provider of online tutoring. Students connect to live tutors from any computer that has Internet access. SMARTHINKING is a virtual learning assistance center. It provides [online tutoring](#) 24 hours a day, 7 days a week. To use this service at [www.smarthinking.com](http://www.smarthinking.com), access the site with the Username and Password below:

**Username:** full MTSU email address (example lmm2r@mts.edu)

**Password:** MTSU

## Students With Disabilities

Qualified students with disabilities will be provided reasonable and necessary academic accommodations if determined eligible by the Office of Disabled Student Services (DSS) (<http://www.mtsu.edu/~dssemail/>). Prior to granting disability accommodations in this course, the instructor must receive written verification of a student's eligibility from the Office of Disabled Student Services. It is the student's responsibility to initiate contact with the DSS staff and to follow the established procedures for having the accommodation notice sent to the instructor.

## Syllabus Changes

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessary during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

## Technical Support

CourseCompass (MyMathLab):  
For Customer Technical Support, call Toll Free 1-800-677-6337,  
Monday through Friday 8 AM – 8 PM EST and on Sunday 5 PM – MIDNIGHT EST.

## Academic Misconduct

The use of a third party to submit a student's work is only allowed when accommodations are approved by the Disabled Student Services Office.

Students found to be in violation of this policy will be reported to the faculty member and Dean of Student Affairs.

Students should be familiar with the “*MTSU Students Rights and Responsibilities*” handbook which outlines academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act,” a statement of community standards of civil behavior, and code of computer use.

The handbook can be accessed at <http://www.mtsu.edu/~stuaff/slunit.htm>.

## Hope (Lottery) Scholarship Information

To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 attempted hours and a cumulative TELS GPA of 3.0 thereafter. A grade of C, D, F, or I in this class may negatively impact TELS eligibility. Dropping a class after 14 days may also impact eligibility. If you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship. **For additional lottery scholarship rules please refer to your Lottery Statement of Understanding form, review lottery scholarship requirements on the web at <http://scholarships.web.mtsu.edu/telsprogram.htm>, or contact the MTSU financial aid office at 898-2830.**

Revised November 7, 2007  
Distance Learning Faculty Services Office  
Academic Outreach and Distance Learning Department  
College of Continuing Education and Distance Learning