

## UNDERGRADUATE CURRICULUM PROPOSAL COVER SHEET

**Title of Proposal -- Must begin with Department Abbreviation:**

Math 1010 Math in Modern World, 2100 Elem Stat, 2150 Math for Elem Ed I, 2160 Math for Elem Ed II (change in prerequisites)

**Check One:**  Full Proposal or  Information Item

**Effective Date for Curricular Offering:** Fall 2012

**FROM:** Department of Mathematics, EMCS 415, 425-4545, john-graef@utc.edu

(proposal originator: include spokesperson's name, department, office number, telephone, e-mail)

**Does this require new resources from the originating department or other department?** no  
Please include an explanation if yes.

**Faculty of the originating department approved this proposal on** 9-23-2011 (date),  
by a vote of 14 aye votes; 3 nay votes; 2 abstentions; 2 eligible voting members absent.

**The following have examined this proposal:**

**Dept Head/Director:** John Graef \_\_\_\_\_  
Printed name Signature, date Approve Neutral Disapprove\*

**College Curriculum Committee Date:** \_\_\_\_\_ **Vote:** \_\_\_\_\_ **Signature of Chair:** \_\_\_\_\_

**Spokespersons for Affected Departments:**

Printed Name, Department	Signature, Date	Approve	Neutral	Disapprove*
<u>John Tucker, Biology</u>	<u>[Signature]</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Verbie Prevost, English</u>	<u>[Signature]</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Kithrell Rushing, History</u>	<u>[Signature]</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Bryan Hampton, Humanities</u>	<u>[Signature]</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Dean/Director:** \_\_\_\_\_

**University Registrar:** Linda Orth \_\_\_\_\_  
Printed name Signature, date Comments

**Provost/Representative:** J Sanders \_\_\_\_\_  
Printed name Signature, date Approve Neutral Disapprove\*

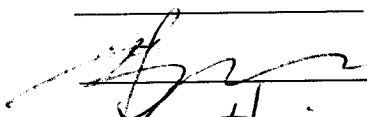
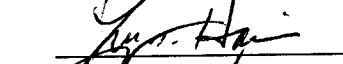

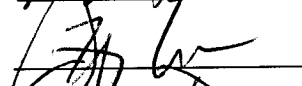
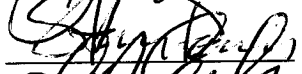
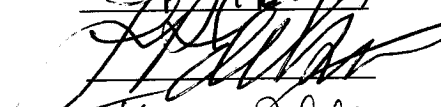
**Lab/studio fee requested:**

**Provost:** Phil Oldham \_\_\_\_\_  
Printed name Signature, date Approve Disapprove\*

\*Those who disapprove may attach an explanation

ACTIONS on this proposal:	Curriculum Committee	Faculty Senate
Date the proposal was considered	_____	_____
Vote of the body:	_____	_____
Accepted as information item (indicate date)	_____	_____
Approved as submitted (indicate date)	_____	_____
Approved with amendments (amendments indicated and transmitted to all signatories above, date):	_____	_____
Signature of Chair:	_____	_____

12.03506

Printed Name, Department	Signature, Date	Approve	Neutral	Disapprove
<del>Sandra Watson, UTeach</del>				
Matthew Greenwell, Art		✓		
Lee Harris, Music		✓		
Mac Smotherman, Theatre		✓		
Fouad Moughrabi, Poli Sci		✓		
Stan Davis, Accounting		✓		
Lawrence Etkin, Mgmt.			✓	
Thomas Rybolt, Chemistry	Thomas Rybolt	✓		
Habte Churnet, Physics	Habte Churnet 10/13/11	✓		

Printed Name, Department

Signature, Date

Approve

Neutral

Disapprove

Brian O'Leary, Psychology

*[Signature]*

John Phillips, Philosophy

*[Signature]*

Ziad Keilany, Economics

*[Signature]*

Jac Wilfentz, Eng

*[Signature]*

John Tucker, Bus/Ec

*[Signature]*

Beverly Brockman, Mktg

*[Signature]*

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Printed Name, Department	Signature, Date	Approve	Neutral	Disapprove
<u>Katherine Lindgren, Nursing</u>	<u>Katherine Lindgren</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Leroy Fanning, HHP</u>	<u>Leroy Fanning 11-10-11</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>John Brauneis, Military Sci.</u>	<u>[Signature]</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Valerie Rutledge, Education</u>	<u>Valerie C Rutledge</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>Dana Moody, Interior Design</u>	<u>Dana Moody</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>Valerie Radu, Social Work</u>	<u>Valerie Radu</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>Betsy Alderman, Communication</u>	<u>[Signature]</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Helen Eigenberg, Criminal Justice</u>	<u>[Signature]</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Randy Walker, Physical Therapy</u>	<u>Randy Walker</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Printed Name, Department

Signature, Date

Approve

Neutral

Disapprove

~~Michael Jones, Marketing~~

Joseph Kizza, Comp Sci.

Neslihan Alp, Eng Mgmt

Gary McDonald, Mech. Eng

Joseph Owino, Chem Eng.

~~Cecelia~~  
Cecilia Wigal, Indus Eng.

Ahmed Eltom, Elec. Eng

Felicia Sturzer Foreign Lang.

Tom Buchanan, Sociology

~~Joseph Kizza~~

N Alp.

Gary McDonald

Joseph Owino

Cecilia M. Wigal

Ahmed Eltom

Felicia Sturzer

Tom Buchanan 10/12/11

✓

✓

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✓

## **Proposal for New Prerequisites for Math 1010 “Mathematics in Our Modern World”**

The Department of Mathematics is responding to the legislation in the Complete College Tennessee Act [1] which prohibits four year colleges and universities from teaching remedial and developmental Math courses. In effect, this eliminates our offering Math 1005 and 1006 (the old Math 105 and 106).

To comply with this mandate, we propose to eliminate the prerequisite for Math 1010.

**The Rationale:** This course requires two years of High School Algebra. All students admitted to UTC should have met these prerequisites. We can no longer offer developmental courses.

**The current catalog description:** (3) credit hours. An introduction to the nature and techniques of mathematics for nontechnical majors. Applications of mathematics to the solution of historical and modern problems will be discussed by selecting topics from the mathematics of finance, the laws of growth and symmetry, graph theory and management science, or the mathematics of social choice and voting schemes. Every semester. Prerequisites: MATH 1006 with a minimum grade of C or Math ACT 22 or above or department head approval.

**New catalog description:** (3) credit hours. An introduction to the nature and techniques of mathematics for nontechnical majors. Applications of mathematics to the solution of historical and modern problems will be discussed by selecting topics from the mathematics of finance, the laws of growth and symmetry, graph theory and management science, or the mathematics of social choice and voting schemes. Students who have not recently taken a mathematics course or who have a Math ACT score of less than 22 are strongly advised to take MyMathTest to determine if additional preparation is needed before they enroll in this course. If the test indicates additional preparation is needed, students are strongly encouraged to complete the Foundations of Mathematics tutorial before attempting this course. Every semester and summers.

**The economic consequences of the proposal:** There is an \$80 access fee for the Foundations of Mathematics tutorial. This can be compared to the cost of taking as many as 8 semester hours of developmental courses (approximately \$2000 for in-state and \$6000 for out-of-state tuition) at another institution. If the student is on campus, he or she will have full access to the computer lab in the Math Plaza where he or she can obtain individual help. The tutorial can also be completed at one’s home without needing to attend any classes on campus. Thus, ambitious but under-prepared students can complete the tutorial prior to orientation and begin their first semester fully ready for Math 1010.

**The pedagogical consequences of the proposal:** Students who traditionally take Math 1010 will be able to complete their mathematics requirements in their freshman year.

[1] SECTION 7. Tennessee Code Annotated, Title 49, Chapter 7, Part 1, is amended by adding the following language as a new section:

Section 49-7-147. Notwithstanding any law to the contrary, after July 1, 2012 four-year institutions governed by the board of regents and the University of Tennessee board of trustees shall not offer remedial

or developmental course, as those terms are defined by the higher education commission, to any student. However, any such four-year institution may coordinate efforts with any two-year institution governed by the board of regents so that the two-year institution may provide the remedial or developmental courses.

### Sample Syllabus

MATH 1010 – MATH IN OUR MODERN WORLD – Section 4

FALL 2012

**Course:** Math 1010 – Section 4, CRN: 12345

**Title:** Math In Our Modern World

**Class Schedule:** Tuesday, Thursday 1:40 – 2:55 Room 233

**Credit:** 3 Undergraduate Credit Hours This course satisfies the University General Education requirements.

**Instructor:** David Hilbert

**Office:** EMCS Building Room 123

**Office Hours:** M,W,F 12:00 – 12:45 and T, Th 1:00 – 1:30 or By Appointment

**Telephone:** (423) 425 – 4339

**E-Mail:** [David.Hilbert@utc.edu](mailto:David.Hilbert@utc.edu)

**ADA Statement:**

If you are a student with a disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) and think that you might need special assistance or a special accommodation in this class or any other class, call the Office for Students with Disabilities at 425-4006 or go to their office 110 Frist Hall.

**Counseling Information:**

If you find that personal problems, career indecision, study and time management difficulties, etc. are adversely affecting your successful progress at UTC, please contact the Counseling and Career Planning Center at 425-4438. Their website is <http://www.utc.edu/Administration/CounselingAndCareerPlanning/>

**Catalog / Course Description:** An introduction to the nature and techniques of mathematics for nontechnical majors. Applications of mathematics to the solution of historical and modern problems will be discussed by selecting topics from the mathematics of finance, the laws of growth and symmetry, graph theory and management science, or the mathematics of social choice and voting schemes.

**Course Objectives:**

To develop the ability of students to think logically and creatively about quantitative problems; to use mathematical reasoning; and to be able to interpret, develop, and use some basic mathematical models of real world phenomena.

To focus on mathematical applications relevant to students as informed consumers, decision makers, and educated citizens.

To demonstrate the use of mathematics as a powerful language in many disciplines and its significant role in human development.

To explore mathematical topics including the mathematics of finance, voting methods, apportioning and counting methods, travelling and minimizing costs.

**Attendance:**

Students are expected to be in class every time there is a scheduled meeting time. Class attendance is important to your success in this course. You are expected to attend all classes and are responsible for any work missed when absent.

**Make-Up Policy: No quizzes will be made up.** All online assignments are to be completed by the deadline stated on the homework schedule posted online.

To make up a missed exam, a student must provide appropriate documentation regarding an excused absence. All Make-Up Exams must be completed BEFORE the test is returned to the entire class. Once a test has been returned to the class, NO MAKE-UP EXAMS will be given. (Tests will be returned to the class within 1 week)

**Assignments and Grades:**

Your grade will be based on your performance on the following areas:

Homework:	15%	Online Assignments
Quizzes:	10%	Approximately 4 quizzes
Tests:	50%	4 in-class tests (100 points each)
Final Exam:	25%	Cumulative Exam (200 points)

Final grades will then be assigned based on the percentage scale:

- A: 90-100 %
- B: 80-89 %
- C: 70-79 %
- D: 60-69 %
- F: below 60 %

**Text:** Mathematics All Around, 4<sup>th</sup> Edition by Thomas L. Pirnot. Pearson / Addison Wesley, 2007  
ISBN: 0-321-56797-8

**Calculators:** A calculator is recommended for this class.  
**Calculators with symbolic manipulators such as TI-89 or TI-92 are not allowed.**

**Computers:** Computer access is required for this course. All assignments and notifications of schedule changes and office hour changes will be posted on Blackboard (aka UTC Online). Also, the homework grade for this course is based on completion of the online computer assignments posted on CourseCompass.

**UTC Communication Statement:**

I have over 200 students every semester. Please include the following information when you email me:  
1) Your full name 2) The course that you are enrolled in (Course number and Section)  
**\*\*NOTE:** Failure to include this information may result in the instructor not responding to the email.

Please check your UTC email on a regular basis. If you have problems with access your email account, contact the Help Desk at 423-425-2676.

**Topical Outline** NOTE: This is a tentative schedule. Students are responsible for keeping up with changes which will be announced in class and posted on Blackboard.

The sections of the textbook to be covered include:

**TEST 1: Chapter 9 – Consumer Mathematics**

**Tuesday, September 13**

Section 9.1 – p. 402 5 – 19 odd, 29 – 37 odd, 39, 41, 51, 53, 55, 57, 59, 61, 63, 65

Section 9.2 – p. 412 5 – 7 odd, 15, 17, 19, 21, 23, 25, 35, 37, 39, 41, 43, 45, 47, 51, 53

Section 9.3 – p. 420 5, 7, 9, 11, 17abc, 19, 21, 23, 25, 27, 29, 31, 33

Section 9.4 – p. 428 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 35, 37, 39, 41, 43, 51, 53

Section 9.5 – p. 437 3, 5, 7, 9, 17, 19, 25, 27, 29, 31, 33, 35

**TEST 2: Chapter 11 – Apportionment, Chapter 12 - Voting**

**Tuesday, October 4**

Section 11.1 – p. 537 3, 5, 7, 9, 11, 13, 15, 17

Section 11.2 – p. 543 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27

Section 11.3 – p. 549 3, 5, 7, 9, 11, 13, 15

Section 11.4 – p. 563 1,2,3,5,7,10, 11, 12, 13, 14, 15, 16, 17- 29 all

Section 12.1 – p. 587 5, 7-22 all, 31, 33

Section 12.2 – notes, class discussion, vocab

**TEST 3: Chapter 13 – Counting, Chapter 14 - Probability**

**Thursday, October 20**

Section 13.1 – p. 628 5, 7, 11, 15, 17, 18, 19, 21, 23, 25, 27, 39

Section 13.2 – p. 636 5, 7, 9, 11, 13, 15, 17, 19, 21, 24

Section 13.3 – p. 647 5-23 odd, 31-39 odd, 40, 41,42,43,45,47,49,55,56,57,61

Section 14.1 – p. 669 7, 9, 10, 15, 18, 19, 21, 23, 25, 27, 29, 31, 35, 37

Section 14.2 – p. 679 5 – 31 odd

**TEST 4 – Chapter 4 – Graph Theory (Networks)**

**Tuesday, November 22**

Section 4.1 – p. 149 1, 2, 5, 7, 9, 11, 13, 23, 25, 27, 29, 37, 41

Section 4.2 – p. 160 7, 8, 9, 13, 17, 19, 21, 23, 25, 27, 29, 31, 35, 37

**Other Important Dates:**

September 2 – Last day to add a course or to change sections

September 4 – Last day to drop without a “W”

September 5 – Labor Day Holiday (NO CLASS)

October 3 – October 7 – Notification of mid-term grades

**October 23 – Last day to drop with a “W”**

October 24 – 25 – Fall Break ( No classes)

November 23 - 27 – Thanksgiving Holiday

December 2 – Last Day of Class

**FINAL EXAM: Tuesday, December 6 2:00 – 4:00 PM**

**Homework:**

Homework must be completed online via Course Compass. You will need an access code (which is packaged with your book) to register for the course via [www.coursecompass.com](http://www.coursecompass.com) . In addition your personal access code, you will also need the following information:

\*Your textbook provides a very clear description of the steps needed to created a user name/password for MyMathLab at the beginning of the text. Use your UTC email account and your "official name" NO nicknames. (Check for spelling errors).

## **Proposal for New Prerequisites for Math 2100 “Introductory Statistics”**

The Department of Mathematics is responding to the legislation in the Complete College Tennessee Act [1] which prohibits four year colleges and universities from teaching remedial and developmental Math courses. In effect, this eliminates our offering Math 1005 and 1006 (the old Math 105 and 106).

To comply with this mandate, we propose to eliminate the prerequisite for Math 2100.

**The Rationale:** This course requires two years of High School Algebra. All students admitted to UTC should have met these prerequisites. We can no longer offer developmental courses.

**The current catalog description:** (3) credit hours. An introductory course suitable for students in a variety of disciplines. This course will teach students to interpret, develop, and use statistical and probabilistic models of real world phenomena; develop the concepts of uncertainty, probability, and statistical significance; and will indicate how these concepts arose and how they aid our understanding of the universe. Students will learn how to solve practical problems using statistical vocabulary, notation, and appropriate technology. Every semester. Prerequisites: MATH 1006 with a minimum grade of C or Math ACT 22 or above or department head approval. Credit not allowed in 2100 after completion of any other General Education statistics course with a minimum grade of C.

**New catalog description:** (3) credit hours. An introductory course suitable for students in a variety of disciplines. This course will teach students to interpret, develop, and use statistical and probabilistic models of real world phenomena; develop the concepts of uncertainty, probability, and statistical significance; and will indicate how these concepts arose and how they aid our understanding of the universe. Students will learn how to solve practical problems using statistical vocabulary, notation, and appropriate technology. Students who have not recently taken a mathematics course or who have a Math ACT score of less than 22 are strongly advised to take MyMathTest to determine if additional preparation is needed before they enroll in this course. If the test indicates additional preparation is needed, students are strongly encouraged to complete the Foundations of Mathematics tutorial before attempting this course. Every semester and summers. Credit not allowed in 2100 after completion of any other General Education statistics course with a minimum grade of C

### **The economic consequences of the proposal:**

There is an \$80 access fee for the Foundations of Mathematics tutorial. This can be compared to the cost of taking as many as 8 semester hours of developmental courses (approximately \$2000 for in-state and \$6000 for out-of-state tuition) at another institution. If the student is on campus, he or she will have full access to the computer lab in the Math Plaza where he or she can obtain individual help. The tutorial can also be completed at one's home without needing to attend any classes on campus. Thus, ambitious but under-prepared students can complete the tutorial prior to orientation and begin their first semester fully ready for Math 2100.

**The pedagogical consequences of the proposal:** Students who traditionally take Math 2100 will be able to complete their mathematics requirements in their freshman year.

[1] SECTION 7. Tennessee Code Annotated, Title 49, Chapter 7, Part 1, is amended by adding the following language as a new section:

Section 49-7-147. Notwithstanding any law to the contrary, after July 1, 2012 four-year institutions governed by the board of regents and the University of Tennessee board of trustees shall not offer remedial or developmental course, as those terms are defined by the higher education commission, to any student. However, any such four-year institution may coordinate efforts with any two-year institution governed by the board of regents so that the two-year institution may provide the remedial or developmental courses.

*Mathematics 2100 (001) CRN # 12345*

*Introductory Statistics*

*Credit: 3 Semester Hours*

*Fall, 2012*

*10:50 - 12:05 Tuesday and Thursday - Room 201, EMCS*

"This course fulfills a general education requirement in Statistics ."

Instructor: Johann Bernoulli

*Mathematics 2100 (004) CRN # 41597*

*Introductory Statistics*

*Credit: 3 Semester Hours*

*Fall, 2012*

*10:50 - 12:05 Tuesday and Thursday - Room 201, EMCS*

"This course fulfills a general education requirement in Statistics ."

Instructor: Johann Bernoulli

Office: 412 EMCS e-mail: Johann.Bernoulli@utc.edu

Phone: 425-1234 (425-4545 - Math Office)

Office Hours: 10:00 - 12:00 Monday and Wednesday. Others by appointment

Text: "*Beginning Statistics*" by Warren, Denley, Atchley

ADA Statement: If you are a student with a disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) and think that you might need special assistance or a special accommodation in this class or any other class, call the Office for Students with Disabilities at 425-4006, come by the office - 102 Frist Hall or see <http://www.utc.edu/OSD/>.

If you find that personal problems, career indecision, study and time management difficulties, etc. are adversely affecting your successful progress at UTC, please contact the Counseling and Career Planning Center at 425-4438 or <http://www.utc.edu/Administration/CounselingAndCareerPlanning/>.

Description: An introductory course suitable for students in a variety of disciplines. This course will teach students to interpret, develop and use statistical and probabilistic models of real world phenomena. The course will develop the concepts of uncertainty, probability and statistical significance, and will indicate how these concepts arose and how they aid our understanding of the universe. Content will be selected from topics in data analysis, probability, regression and correlation and hypothesis testing.

Prerequisite: No credit Math 210 may not be used to satisfy the math component of Category F General Education requirements.

Grading Scale:	90 - 100	A
	80 - 89	B
	70 - 79	C
	60 - 69	D
	Below 60	F

Grade Determination:	Four Tests (Lowest will be dropped)	300 points
	Computer Assignments	25 points
	Examination(Comprehensive)	<u>100 points</u>
	Total	425 points

Test Dates: *September 13 , October 6 , November 3 , November 29*

Examination: *11:00 - 1:00 December 8,2011*

**Important Items**

1. Important dates	<b>August 22</b>	<b>Classes Begin</b>
	<b>September 5</b>	<b>Labor Day Holiday</b>
	<b>October 3 - 7</b>	<b>Midterm</b>
	<b>October 23</b>	<b>Last day to drop with a W</b>
	<b>October 24 - 25</b>	<b>Fall Break</b>
	<b>November 23 - 27</b>	<b>Thanksgiving Day</b>
	<b>December 2</b>	<b>Last Day of Classes</b>
	<b>December 5 - 9</b>	<b>Exams</b>

2. If you take all four tests and accumulate **391** points, which is a 92 average on the four tests and your computer assignments, then you will be exempt from the final examination with an **A** in the course. [Lowest test is not dropped in this calculation, but **will be dropped and replaced by your grade on the final examination in the calculation of your final course grade if you take the final examination**]

If you take all four tests and accumulate **349** points, which is an 82 average on the four tests and your computer assignments, then you will be exempt from the final examination with a **B** in the course. [Lowest test is not dropped in this calculation, but **will be dropped and replaced by your grade on the final examination in the calculation of your final course grade if you take the final examination**]

If you take the final examination, your **lowest test score will be dropped and replaced by your examination score regardless of whether it is better or worse than the dropped test score.**

3. Procedures: Attendance will be checked daily. **You are expected to be in class.** I work very diligently to present the new material and go over homework each day. I have very little patience with those who constantly cut class. If you are serious about learning the material, you will be present each day. I will be more than happy to help those who clearly indicate that they are interested in learning the material and passing the course. **You will need a scientific calculator.** A simple credit card calculator will not be sufficient. If you wish, you may use a graphing calculator. I am not responsible for teaching you how to use your calculator, although, on occasion, I may present ways to make better use of some of the functions that you may not use ordinarily.

4. Cell phones must be turned off when you are in class, and any cell phone use on any test will result in an F in the class and constitutes an Honor Court Violation.

5. On test day you should bring three (or four) things: calculator, sharpened pencils, a photo ID and the textbook. [ it will be announced in class when you may use the textbook for tables ]

6. I do not use Blackboard. There are simply too many risks and issues involved. You will have to attend class to receive information concerning this class.

7. If a test is scheduled and inclement weather forces UTC to open on a delay or school is cancelled for the day, the test will be given during the first regularly scheduled class period when normal operations resume. If we open on a delay, then class will meet, but the test will be not be given that day.

"To enhance student services, the University will use your UTC email address (firstname-lastname@utc.edu) for communications. (See <http://onenet.utc.edu> for your exact address.) Please check your UTC email on a regular basis. If you have problems with accessing your email account, contact the Help Desk at 423/425-2676."

**Assistance:**

<http://www.utc.edu/advise/> (423) 425-4573

Advisement for Undecided Majors and Tutoring - University Center, Room 108

**Math Lab:** Tutoring is available in the Mathematics Lab in room 205 EMCS. Tutors are not always available, so you should make arrangements ahead of time. One cannot just "drop in" and expect to have someone available to assist them. Tutors in the lab have as their primary assignment, students enrolled in Math 105 and Math 106

I will be available during office hours, or by appointment, to assist you.



## **Proposal for New Prerequisites for Math 2150 “Mathematics for Elementary and Middle School Teachers I”**

The Department of Mathematics is responding to the legislation in the Complete College Tennessee Act [1] which prohibits four year colleges and universities from teaching remedial and developmental Math courses. In effect, this eliminates our offering Math 1005 and 1006 (the old Math 105 and 106).

To comply with this mandate, we propose to eliminate the prerequisite for Math 2150.

**The Rationale:** This course requires two years of High School Algebra. All students admitted to UTC should have met these prerequisites. We can no longer offer developmental courses.

**The current catalog description:** (3) credit hours. This is the first course in a two semester sequence designed for elementary, middle school, and special education majors. The purpose is to develop a thorough understanding of the mathematics taught in the schools. Topics include the arithmetic properties and operations for the natural numbers, whole numbers, integers, rational and irrational number systems; elementary number theory including prime and composite numbers, factors and divisibility criteria, the Fundamental Theorem of Arithmetic, greatest common divisors and least common multiples; place values, percents, decimal, and other numeration systems. Every semester. Prerequisites: MATH 1006 with a minimum grade of C or Math ACT 22 or above or department head approval.

**New catalog description:** (3) credit hours. This is the first course in a two semester sequence designed for elementary, middle school, and special education majors. The purpose is to develop a thorough understanding of the mathematics taught in the schools. Topics include the arithmetic properties and operations for the natural numbers, whole numbers, integers, rational and irrational number systems; elementary number theory including prime and composite numbers, factors and divisibility criteria, the Fundamental Theorem of Arithmetic, greatest common divisors and least common multiples; place values, percents, decimal, and other numeration systems. Students who have not recently taken a mathematics course or who have a Math ACT score of less than 22 are strongly advised to take MyMathTest to determine if additional preparation is needed before they enroll in this course. If the test indicates additional preparation is needed, students are strongly encouraged to complete the Foundations of Mathematics tutorial before attempting this course. Every semester and summers.

**The economic consequences of the proposal:** There is an \$80 access fee for the Foundations of Mathematics tutorial. This can be compared to the cost of taking as many as 8 semester hours of developmental courses (approximately \$2000 for in-state and \$6000 for out-of-state tuition) at another institution. If the student is on campus, he or she will have full access to the computer lab in the Math Plaza where he or she can obtain individual help. The tutorial can also be completed at one's home without needing to attend any classes on campus. Thus, ambitious but under-prepared students can complete the tutorial prior to orientation and begin their first semester fully ready for Math 2150.

**The pedagogical consequences of the proposal:** Students who traditionally take Math 2150 will be able to complete their mathematics requirements in their freshman year. Students enrolled in Math 2150 will

be made aware of the tutorial prerequisite for Math 2160, and they will be encouraged to complete the tutorial while enrolled in Math 2150. Support for students taking the tutorial will be available in the Math Plaza.

[1] SECTION 7. Tennessee Code Annotated, Title 49, Chapter 7, Part 1, is amended by adding the following language as a new section:

Section 49-7-147. Notwithstanding any law to the contrary, after July 1, 2012 four-year institutions governed by the board of regents and the University of Tennessee board of trustees shall not offer remedial or developmental course, as those terms are defined by the higher education commission, to any student. However, any such four-year institution may coordinate efforts with any two-year institution governed by the board of regents so that the two-year institution may provide the remedial or developmental courses.

## **Sample Syllabus – Math for Elementary and Middle School Teachers I – FALL 2012 – Section 2**

**COURSE:** Math 2150 – 2 CRN: 12345

**TITLE:** Math for Elementary and Middle School Teachers I

**MEETING TIME** Tuesday/Thursday: 9:25 – 10:40 AM  
**AND LOCATION:** EMCS 240

**CREDIT:** 3 credit hours . This course satisfies the University General Education Requirements for Mathematics.

**FACULTY:** Henri Poincare  
Office: EMCS 321 Phone: 425 – 1223

E-mail: Henri-Poincare@utc.edu

Office hours: By appointment only. Specific hours will be posted to UTC Online

**TEXTBOOK:** Mathematics for Elementary School Teachers, A Conceptual Approach, 9<sup>th</sup> edition.  
Albert B. Bennett, Jr., Laurie J. Burton, L. Ted Nelson. McGraw Hill, 2012  
ISBN: 978-0-07-351957-9

This course will cover the material in chapters 1 through 6 of the text.  
A general outline of the material covered in the course is presented below.

**COURSE DESCRIPTION:** This is the first course in a two semester sequence designed for elementary, middle school, and special education majors. The purpose is to develop a thorough understanding of the mathematics taught in the elementary and middle schools. Topics include problem solving techniques, deductive reasoning, the arithmetic properties and operations for the natural, whole, rational, and irrational number systems; elementary number theory including prime and composite numbers, factors and divisibility criteria, the Fundamental Theorem of Arithmetic, greatest common divisors and least common multipliers, place values, percents, decimals, and other numeration systems.

**COURSE OBJECTIVES:** Students will learn the mathematical concepts and theories required for teaching the basic number operations with whole numbers, integers, rational and irrational numbers.  
Students will practice developing short lessons to present the concepts covered in the course to appropriate age groups in K – 8 classes.

**ATTENDANCE POLICY:** Attendance is strongly recommended for successful completion of this course. Attendance is taken every class but will not count as part of your grade.  
If you miss a class, be sure to check UTC Online (Blackboard) to get all the assignments and any handouts that were provided. YOU are responsible for keeping up with missed material, class notes, or test date changes.

**MAKE-UP POLICY:** There will be NO make-up tests. If you are absent for a test FOR ANY REASON, that will count as your dropped test grade.

**HOMEWORK:** Homework assignments that are turned in late will lose 5% of the grade for each day they are late. You must work independently and SHOW ALL WORK to receive full credit.

**PROJECT:** There will a mandatory project this semester. It will count for 100 points of your grade and will NOT be accepted late. Details will be posted on UTC Online.

**EVALUATION:** Homework: Homework (6 @ 50 points) 300 points  
 Project 100 points  
 Tests: 4 @ 100 points (drop lowest) 300 points  
 Final exam: Cumulative and Mandatory 200 points  
 TOTAL: 900 points  
 Term grade will be determined by the percentage of total points earned:  
 90 – 100% = A 80 – 89% = B 70 – 79% = C 60 – 65% = D Below 60% = F

**SKILL TESTS:** Skill test questions will be added to the end of each test. In order to pass the course, you must answer 85% of every skill test questions correctly. If at the end of the term you have not answered 85% of the questions correctly, you will have to pass a separate skill test with a minimum score of 85%. If you do not complete this requirement by the end of the semester, you will receive an INCOMPLETE for the term.

**CALCULATORS:** Calculators will not be allowed for the major part of this course. Chapters 1 – 5 will be completed without the use of calculators.

**ADA STATEMENT:** If you are a student with a disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) and think that you might need special assistance or a special accommodation in this class or any other class, call the Office for Students with Disabilities at 425-4006, come by the office - 102 Frist Hall or see <http://www.utc.edu/OSD/>  
 If you find that personal problems, career indecision, study and time management difficulties, etc. are adversely affecting your successful progress at UTC, please contact the Counseling and Career Planning Center at 425-4438 or <http://www.utc.edu/Administration/CounselingAndCareerPlanning/>.

<b>TOPICAL OUTLINE:</b> This is a general outline of the material to be covered this semester. <i>The dates may change as the term progresses. All changes will be announced in class and posted to Blackboard.</i> <b>CLASS DATES</b>	<b>TUESDAY</b>	<b>THURSDAY</b>	<b>Homework Due Dates</b>
8/23 & 8/25	INTRO		1.1 & 1.2
8/30 & 9/1	1.3	2.1	Homework 1 Due 9/1
9/6 & 9/8	2.2		2.3
9/13 & 9/15	REVIEW	Test 1	Homework 2 Due 9/15
9/20 & 9/22	3.1 & 3.2		3.3
9/27 & 9/29	3.4	4.1	Homework 3 Due 9/29
10/4 & 10/6	4.2	REVIEW	Homework 4 Due 10/6
10/11 & 10/13	TEST 2		5.1
10/18 & 10/20	5.2		5.3
10/25 & 10/27	FALL BREAK	REVIEW	Homework 5 Due 10/27
11/1 & 11/3	TEST 3		6.1
11/8 & 11/10	6.2		6.3
11/15 & 11/17	6.4	REVIEW	Homework 6 Due 11/17
11/22 & 11/24	TEST 4		THANKSGIVING BREAK
11/29 & 12/1	REVIEW	REVIEW	Project Due 12/1
12/6 & 12/8	...		FINAL EXAM 12/8, 8-10am

## **Proposal for New Prerequisites for Math 2160 “Mathematics for Elementary and Middle School Teachers II”**

The Department of Mathematics is proposes to change the prerequisite for Math 2160 to include a tutorial for those students completing Math 2150.

**The Rationale:** The material in Math 2160 covers topics which emphasize algebraic manipulations, topics in geometry, and some probability and statistics. Previously, the algebra content for many of the students needing this course was obtained in Math 1006, which no longer can be offered. The requirement of completion of a tutorial will facilitate student success in this course.

**The current catalog description:** (3) credit hours. This is the second course in a two semester sequence designed for elementary, middle school, and special education majors. The purpose is the continuation of the study of mathematical topics from Math 2150 with an emphasis on algebraic notation, sets and functions, basic geometric concepts of measurement, length, area, perimeter, surface area, volume, and the Pythagorean Theorem. Some elementary probability and statistics, including some educational statistics, will be included. Every semester. Prerequisites: MATH 2150 with a minimum grade of C or Math ACT 26 or above or approval of the Mathematics Department Head. This course will meet General Education Mathematics requirement, but not General Education Statistics requirement.

**New catalog description:** (3) credit hours. This is the second course in a two semester sequence designed for elementary, middle school, and special education majors. The purpose is the continuation of the study of mathematical topics from Math 2150 with an emphasis on algebraic notation, sets and functions, basic geometric concepts of measurement, length, area, perimeter, surface area, volume, and the Pythagorean Theorem. Some elementary probability and statistics, including some educational statistics, will be included. Every semester and summers. Prerequisites: MATH 2150 with a minimum grade of C and completion of the Foundations of Mathematics tutorial, or a Math ACT 26. This course will meet General Education Mathematics requirement, but not General Education Statistics requirement.

**The economic consequences of the proposal:** The tutorial will cost the student \$80. This is not an unreasonable addition to the cost since the textbook for Math 2160 is the same as that used for Math 2150.

**The pedagogical consequences of the proposal:** The requirement of the tutorial will enhance the probability of success in this course for students with an ACT score lower than 26. Students enrolled in Math 2150 will be made aware of the tutorial prerequisite for Math 2160, and they will be encouraged to complete the tutorial while enrolled in Math 2150. Support for students taking the tutorial will be available in the Math Plaza.

**SYLLABUS**  
**Math 2160-0 CRNM: 12345**  
**Math 2160-1 CRNM: 12346**  
**Math for Elementary and Middle School Teachers II**  
**Fall 2012**

**Instructor: Pierre de Fermat**

**EMCS 418-A**

[Pierre-Fermatr@utc.edu](mailto:Pierre-Fermatr@utc.edu)

**425-4036**

**12345**  
**MWF 9:00-9:50 am**  
**EMCS 211**

**12346**  
**MWF 1:00-1:50 pm**  
**EMCS 232**

**Office Hours:**

MWF: 10:00-11:00 AM

Or by appointment. Email is a great way to reach me with questions.

**ADA Statement:** If you are a student with a disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) and think that you might need special assistance or a special accommodation in this class or any other class, call the Office of Students with Disabilities/College Access Program at 425-4006 or come by the office – 102 Frist Hall or see <http://www.utc.edu/OSD/>

If you find that personal problems, career indecision, study and time management difficulties, etc. are adversely affecting your successful progress at UTC, please contact the Counseling and Career Planning Center at 425-4438 or see <http://www.utc.edu/Administration/CounselingAndCareerPlanning/>.

**Text:** *Mathematics for Elementary Teachers*, Gary L. Musser, et al, 8<sup>th</sup> Edition. Wiley Publishing, 2008.

**Course Description:** The second course in a two semester sequence designed for elementary, middle school and special education majors. The purpose is the continuation of the basic math topics from Math 215 with an emphasis on algebraic notation, sets, and functions, basic geometric concepts of measurement, length, area, perimeter, surface area, volume and the Pythagorean Theorem. Some elementary probability and statistics, including some educational statistics will be included.

**Prerequisites:** UTC Math 2150 with minimum grade C and a tutorial or Math ACT score of 26 or above, or by approval of the Mathematics Department.

**Supplies:**

Protractor: Required for the course. A clear protractor is best. This will be used as a straight edge as well as a measurement tool.

Graph Paper: You will find graph paper invaluable in this course.

Additional supplies will be necessary to complete the projects and will be outlined within the project descriptions.

**Grading Policy:** Your grade will consist of four tests, two projects and a cumulative final exam. No grades will be dropped.

The weights for each component are as follows:

Four Tests	60%
Project 1:	10%
Project 2:	10%
Final Exam:	20%
TOTAL	100%

Course grades will be assigned as follows:

A: 90-100      B: 80-89      C: 70-79      D: 60-69      F: below 60

Writing Component: There will be a written component of this course and it will be handled within the Projects.

**Phone Policy:** Cell phones are not allowed to be used during the lectures and should not ring in any fashion. It is distracting to everyone if you are continually communicating through cell phones. You will be chastised and asked to turn your phone off on the first offense. If there are additional offenses, you will be asked to leave the class. The use of a cell phone in class can jeopardize your grade.

**Make-up Policy:** Make up exams will not be given except for **extremely compelling** reasons, as determined by the instructor. Notification **MUST** be given to the instructor **PRIOR** to missing an exam to be considered for a make-up.

**Late-Work Policy:** **NO LATE WORK WILL BE ACCEPTED.** If you know you will be absent the day it is due, you need to turn it in to me **prior** to the due date. I will **NOT** accept electronic submissions.

**Group-Work Policy:** Project 1 is to be done in groups of 2 or more. I will not allow Project 1 to be done by one-person groups (that is not a group).

**Attendance:** Attendance is not required, but is highly encouraged. Due to the dynamics of this course, the schedule can change. It is your responsibility to keep up with changes in the schedule. They will typically be announced in class.

**Online Component:** **Blackboard** will be used in this class to post grades, assignments, reviews and other course information. It will also be my main mode of communication with the class outside of the classroom. Each student is required to access the **Blackboard** account for this class regularly. You can log into **Blackboard** using your UTC id and password. You should be automatically registered online. If you are having problems, contact the **Blackboard** administrators.

**Additional Information:**

To enhance student services, the University will use your UTC email address (firstname-lastname@utc.edu) for communications. (See <http://onenet.utc.edu> for your exact address.) Please check your UTC email on a regular basis. If you have problems with accessing your email account, contact the Help Desk at 423/425-2676.

Week Of	Tentative Material Covered – Subject to Change	Related Homework Problems
Aug 22	M: Introduction, NCTM Standards W: Recognizing and categorizing shapes F: Recognizing and categorizing shapes	Review NCTM standards and GLE for geometry, measurement, algebra and probability on NCTM website 12.1 Exercises Part A: 1-5, 10, 11, 12, 17-21
Aug 29	M: Analyzing shapes and properties of shapes W: Analyzing shapes and properties of shapes F: Regular polygons and tessellations	12:2 Exercises A: 1-8, 11 12:3 Exercises A: 1-9, 10-16
Sept 5	<b>M: NO CLASS SEPT 5<sup>th</sup></b> W: Regular polygons and tessellations F: Describing 3 dimensional shapes	12.4 Exercises A: 1-10, 18 12.5 Exercises A: 1-6, 8, 10, 11, 13, 15, 17-19
Sept 12	M: Review and Tie Up of Chapter 12 <b>W: Test 1 Chapter 12</b> F: Built in day for schedule	Review by completing appropriate exercises Chapter 12
Sept 19	M: Congruence and similarity of triangles W: Congruence and similarity of triangles F: Problem solving using congruence and similarity	14.1 Exercises A: 1-13 14.1 Problems A: 15, 18, 19, 20 14.2 Exercises A: 1-6 14.2 Problems A: 10-12, 14 14.5 Exercises A: 1-4
Sept 26	M: Transformations W: Congruence and Similarity using transformations F: Geometric Problem Solving using transformation	16.1 Problems A: 27-29 16.2 Exercises A: 9 – 11, 13-14 16.3 Exercises A: 6 – 9
Oct 3	M: Review and tie up of Chapters 14 and 16 <b>W: Test 2 Chapters 14 and 16</b> F: Real Numbers	Review by completing Chapter 14 and 16 Reviews 9.2 Exercises A: 1-13, 21-25
Oct 10	M: Functions W: Algebra and Functions F: Algebra and Functions	9.3 Exercises A: 1-7, 14, 17, 18, 19, 22
Oct 17	M: Distance and slope in coordinate plane W: Equations and coordinates F: Geometric problem solving using coordinates	15.1 Exercises A: 1-5, 7-10, 12-13 15.1 Exercises B: 3, 8 15.2 Exercises A: 1-18 15.3 Exercises A: 1-14
Oct 24	M: No Class Oct 25th W: Review and tie up of Chapters 9 and 15 <b>F: Test 3 Chapters 9 and 15</b>	Review by completing Chapter Reviews on Page 846-847 and going over notes and handouts for Chapter 9 and 15.
Oct 31	M: Project 1 Presentations W: Project 1 Presentations F: Built in Day for Schedule Changes	
Nov 7	M: Measurement with standard and non-standard units	13.1 Exercises A: 1-20

	W: Measurement with standard and non-standard units F: Measurement of Attributes	13.2 Exercises A: 1-22 13.3 Exercises A 1-12
Nov 14	M: Length and Area W: Volume F: Volume	13.4 Exercises A: 1-10
Nov 21	M: Built in day for Schedule <b>W: Thanksgiving Holiday</b> <b>F: Thanksgiving Holiday</b>	
Nov 28	M: Review and Tie up of Chapter 13 W: <b>Test 4 Ch 13</b> F: Project 2 Due in Class	Review by completing Chapter 13 Review
Dec 5	<b>Final Exams Begin</b>	<b>9:00 Section: Monday Dec. 5 @ 8AM</b> <b>1:00 Section: Wednesday Dec. 7 @ 2 PM</b>