

NorthCentral

MISSOURI COLLEGE

SYLLABUS

Applied Technical Mathematics with Workshop Fall Semester 2016

Course Number: MF104W

Instructor Information:

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Office Hours: MWF 1:00-4:30pm; TR 3:30-4:30pm

*Faculty will respond to email/phone messages within 48 hours Monday-Friday. All email correspondence is through NCMC student email.

Course Description:

This course is designed for students who do not meet MF 104 Applied Technical Math requirements. The purpose of this course is to develop skills in basic math areas, such as measurement in standard and metric units, conversions, scientific and engineering notation, ratio and proportion, decimals, fractions, percentages, formulas, equations, basic geometry, Pythagorean Theory, right triangle trigonometry and introductory statistical process control. Includes a three credit hour workshop designed to give students customized support to provide just-in-time academic support to help their learning and success of the course.

Prerequisites: No prerequisite

Credit Hours: 6 (This is not a transfer course.)

Textbook and /or Supplementary Materials:

- Applied Technical Mathematics, Authors Peterson & Smith, ISBN 1-285-89114-7
- Internet access is expected for outside-of-class assignments.

Student Learning Objectives:

Student Learning Objective	Assessment Method
Upon successful completion of this course the student will be able to:	Describe the assessment tool/s used to demonstrate each student learning outcome.

<p>1. use mathematical problem solving techniques involving real numbers, exponents, order of operation, linear equations, exponents and polynomials.</p>	<p>Section Exams, Final Exam, Homework problems, Inter-active in-class problems</p>
<p>2. create linear models of real world situations.</p>	<p>Section Exams, Final Exam, Homework problems, Inter-active in-class problems</p>
<p>3. use inductive reasoning to develop mathematical conjectures involving real numbers, algebraic notation, linear models, exponents and polynomials and use deductive reasoning to verify and apply mathematical arguments involving the same.</p>	<p>Section Exams, Final Exam, Homework problems, Inter-active in-class problems</p>
<p>4. make mathematical connections to, and solve problems from other disciplines (specifically, Mechanical and Construction Technology) that can be represented using real numbers, algebraic notation and linear models.</p>	<p>Section Exams, Final Exam, Homework problems, Inter-active in-class problems</p>
<p>5. use oral and written skills to individually and collaboratively communicate about real numbers, algebraic and numeric notation, linear expressions and equations, exponents and polynomials.</p>	<p>Section Exams, Final Exam, Homework problems, Inter-active in-class problems</p>
<p>6. use appropriate technology to enhance their mathematical thinking and understanding of and to solve problems involving real numbers, algebraic notations and linear expressions and equations; judge the reasonableness of their results.</p>	<p>Section Exams, Final Exam, Homework problems, Inter-active in-class problems</p>
<p>7. do projects that encourage independent, non-trivial exploration of situations that best model linear equations.</p>	<p>Section Exams, Final Exam, Homework problems, Inter-active in-class problems</p>

8. solve problems using geometric formulae (perimeter, area and volume) and dimensional analysis (unit conversion).	Section Exams, Final Exam, Homework problems, Inter-active in-class problems
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Course Outline/Major Topics Studied:

- Basic operations with Whole Numbers, Common & Decimal Fractions.
- Ratios, Proportions and Percentages
- Scientific and Engineering Notation
- Measurement Precision, Accuracy and Tolerance
- Customary & Metric Measurement Units and Conversions
- Measurement with Steel Rules, Vernier Calipers and Micrometers
- Introduction to Algebra and Basic Algebraic Operations
- Writing and Solving Simple & Complex Equations
- The Cartesian Coordinate System and Graphs of Linear Equations
- Quadratic Equations and use of the Quadratic Formula
- Areas of Common Polygons, Circles, Sectors and Segments
- Volumes, Surface Areas and Weights of Prisms, Cylinders, Pyramids & Cones
- Graphs – Bar, Circle and Line
- Basic Statistical Parameters
- Introduction and Practical Use of Statistical Process Control (Control Charts)
- Pythagorean Theorem
- Introduction to Trigonometric Functions with Right Triangles

Instructional Methods and Techniques:

1. Lecture
2. Demonstration
3. Online activities/research
4. The workshop is designed to provide support and scaffolding to strengthen student skills in order to improve success.

Course Requirements:

This course requires a minimum of two hours of out-of-class work for every one hour of faculty instruction.

Homework Assignments (up to 20%)

Points will be given on completed homework assignments that are randomly collected for grading. All points will be totaled at the end of the course. A percentage grade will be given according to the grading scale. A student will receive 50% credit on late assignments. No work will be accepted that is more than one week late.

Section Tests (50%)

Section tests will be given at the end of each major book section.

Final Exam (30-50%)

Grading Scale:

A=90-100

B=80-89.9

C=70-79.9

D=60-69.9

F= Below 60

If the instructor determines that the above grading scale is not appropriate, the instructor reserves the choice to grade on the curve.

Attendance and Class Participation:

Absences reduce the value of the learning experience and reduce the probability of passing the course as research indicates successful college students attend class regularly. NCMC strongly encourages students to attend classes on a regular basis as registration for any NCMC course presupposes that the student will attend all scheduled classes, laboratories, and clinicals. **Failure to attend class does not constitute an official standard withdrawal.** Students are responsible for withdrawing from classes.

After the published Add/Drop date, students are financially responsible for costs associated with classes from which they have withdrawn. Students are also financially responsible for the course under the Administrative Drop Policy.

Administrative Drop Policy:

- In an 8-week or full semester on-ground class, if a student fails to attend during the **first ten calendar days** of the semester, an administrative drop will occur. In a 4-week class, if a student fails to attend during the **first six calendar days** of the semester, an administrative drop will occur.
- In an 8-week or full-semester online class, if a student does not complete at least one substantive activity (activity or assignment that impacts the final grade) during the **first ten calendar days** of the semester, an administrative drop will occur. In a 4-week online class, if a student fails to complete at least one substantive activity (activity or assignment that impacts the final grade) during the **first six calendar days** of the semester, an administrative drop will occur.
- Under these circumstances, students are financially responsible for 50% of tuition and course fees associated with classes from which they have been administratively dropped.

Because each class is equivalent to a week's worth of class on a 3-times per week/16-week schedule, attendance is very important. Any planned absence should be made known to the

instructor prior to the absence. The student is still responsible for completing all work by the due date.

Additional Information:

Students enrolled in this course are expected to:

- attend class
- be on time
- participate in class discussions
- read assigned text/materials
- complete written assignments/projects
- act in a professional and respectful manner

Academic Misconduct

Academic integrity is expected and required of all NCMC students. Students and faculty are responsible and accountable for personally upholding that integrity. Each instructor is assigned jurisdiction for class conduct and grades. Cheating will not be tolerated, and students found guilty of cheating in any way will be disciplined according to the following policy.

Cheating Offenses

Cheating offenses include, but are not limited to, the following:

- Copying from another student in an examination situation.
- Using unauthorized material or aids in the preparation of an assignment, paper or project.
- Possessing unauthorized material or aids in an examination situation.
- Allowing another person to take an examination in one's place.
- Altering or falsifying academic records in any way.
- Submitting false medical, academic or other documentation required by the college.
- Improperly obtaining an examination prior to the examination.
- Aiding or abetting anyone in a cheating offense.
- Plagiarizing materials or works, in whole or in part, prepared by another person without citing appropriate reference credit.
- Copying and submitting, in whole or in part, the work of another in an assignment, report, paper, project, etc. as one's own.
- Claiming to have completed assigned tasks that were, in fact, completed by another person.
- Failing to accurately document information, wording, or visual images obtained on the World Wide Web.
- Violating federal copyright laws including unauthorized duplication of copyrighted materials.

Procedure

1. When a student is suspected of cheating, the instructor or other individual who suspects the student of cheating will, at the earliest opportunity, investigate the situation, discuss the matter with the student and come to a decision regarding the student's innocence.

2. In the event a decision is made that the student is responsible of cheating, before determining an appropriate penalty, the course instructor will ascertain from the Dean of Instruction whether the student has been found responsible of any previous cheating offense while enrolled at North Central Missouri College.

3. In the event that the instructor determines this to be a first offense for the student, the instructor will apply an appropriate penalty. The instructor should give due consideration to the seriousness of the offense as well as the impact of the penalty imposed on the student's education. The penalty should also be consistent with the range of penalties outlined in this policy.

4. The instructor will inform the Dean of Instruction of the cheating offense and the penalty applied.

5. In the case of a second offense by the student, the Dean of Instruction will determine the appropriate penalty for this offense and will ensure that the penalty is more severe than the penalty imposed for the previous offense. The student will be advised that if found responsible of a third offense of academic dishonesty at North Central Missouri College, the penalty of expulsion from the College could result.

Penalties

A student responsible of cheating will be subject to a penalty appropriate to the nature and seriousness of the offense.

A record of all such cases will be kept in the office of the Dean of Instruction. Second offenses for the same individual will be subject to a more serious penalty than the one previously imposed.

The following penalties may be applied:

- Reprimand.
- Requirement that the student repeats and re-submits the same or alternate assignment. In such cases, the grade or mark awarded will be reduced or limited at the discretion of the faculty member.
- A mark of "0" will be given for the assignment with no opportunity to resubmit. This may result in failure of the course.
- A failing (F) grade will be awarded in the course.
- Automatic failing (F) grades in all courses in which the student is registered, and no tuition or fees will be refunded for that semester. This penalty will only be imposed by the Dean of Instruction.
- Expulsion from North Central Missouri College, permanently recorded on the student's record. This penalty will result in automatic failing (F) grades in all courses in which the student is registered, and no fees will be refunded for that semester.

Special Accommodations:

North Central Missouri College complies with Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990. Students with documented disabilities who need special classroom accommodations must make their requests in writing to: Disability Support Services, Alexander Student Center, 1301 Main Street, Trenton, MO 64683 or call 660-359-

3948, ext. 1405 for an appointment. Services provided can be found at:
http://www.ncmissouri.edu/services/disability_services/default.aspx

If you have been approved for an accommodation, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately.

Title IX:

In accordance with Title IX of the Education Amendments of 1972, NCMC prohibits sex discrimination and is committed to fostering a learning environment that is safe, inclusive, and fosters academic success. Sex discrimination involves differential treatment or adverse action based on a person's real or perceived sex, gender identity and/or gender expression. Sex discrimination includes discrimination on the basis of pregnancy, sexual orientation, gender identity, and failure to conform to stereotypical notions of femininity and masculinity, as well as same gender harassment. Sexual harassment is a form of prohibited sex discrimination, and sexual violence is a particularly severe form of sexual harassment.

If you or someone you know experience gender-based discrimination, harassment, or violence, please contact Tyson Otto, Title IX Coordinator, Frey Administrative Building, 1301 Main Street, 660-359-3948, ext 1500, totto@mail.ncmissouri.edu. More information can be found at: http://www.ncmissouri.edu/current_student/titleix/default.aspx

Early Alert:

Success in this course is important. When the instructor believes that a referral to the Early Alert Program will help a student academically, information will be sent to appropriate college personnel. As a result, the student may be contacted by other faculty/staff in order to develop an intervention that will help in achieving educational goals. Please take advantage of these and other resources while at NCMC.

Communications:

Students are required to use their NCMC student email account for any correspondence within the college. Students are also highly advised to check their email and SAIL accounts on a regular basis.

Finals:

If an emergency occurs that prevents the administration of a final examination, the student's final course grade will be calculated based on the work in the course completed to that point in time and the faculty member's considered judgment. Final exams will not be rescheduled, and a grade of "I" will not be given as a result of the missed exam. This Finals policy does NOT apply to online courses.

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