# Math 1500: Applied Math: 3 Credit Hours
## Mathematics Department: Science, Mathematics, Agriculture and Culinary Division

**Instructor:** Megan Rourke                                    Office: 215A (Math Center)
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**Methods of Communication:**
Please contact me if you have any questions. The best methods of communication are cell phone and e-mail. Please feel free to call/text me if you have a question. If you choose to e-mail, a response will be given within 24 hours of e-mail, up to 48 hours on holidays.

**Description:** Using a problem solving approach, students will acquire a working knowledge of algebra and trigonometry skills for application in technical fields.

**Prerequisite:** MATH 0900 Pre-Algebra or DVST 0910 Beginning Algebra with a grade of "C" or better OR Pre-Algebra placement score 45-100 OR Algebra placement score 0-65 OR ACT score in math of 21 or higher within the last 2 years OR a High School GPA of 3.00 or higher and completion of HS Algebra I and Geometry with a grade of "C" or better.

**Co-requisite:** None

**Purpose:** Applied Mathematics is a non-transfer class intended for students in technical fields. The following courses of study list Applied Mathematics as a part of the suggested sequence at NWCCD: Construction Technology; Diesel Technology; Industrial Electronics; Machine Tool Technology; and Welding. Applied Math may also fulfill the math requirement for other Associate of Applied Science Degrees.
Applied Mathematics is not a prerequisite course to Pre-Calculus Algebra (Math 1400). Successful completion of it does not justify the student's placement above Math Placement Exam Level II.

**Course Format:** Online

**Student Competencies:** Upon completion of Math 1500, the student will be able to:
1. Use basic mathematical operations properly to manipulate integers, fractions, decimals, and percentages.
   a. Convert between fractions, decimals, and percentages.
   b. Use proper order of operations to simplify expressions containing integers, fractions, or decimals.
2. Define, evaluate, and apply the concepts of accuracy, precision, significant digits, and tolerances in regards to measurement numbers.
   a. Define accuracy, precision, significant digits, and tolerance.
   b. Given a measurement number, tell its accuracy, precision, and number of significant digits.

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      **c.** Appropriately round the result when adding, subtracting, multiplying, or dividing measurement numbers.

      **d.** Calculate minimum and maximum tolerances for a given situation.

3. Express and apply mathematical operations to numbers written in scientific notation.
   a. Write numbers in scientific notation.
   b. Apply mathematical operations to numbers expressed in scientific notation.

4. Convert from one system of units to another.
   a. Identify units of measurements from the metric and English systems.
   b. Convert units within each system and between systems.

5. Graph systems of linear equations.
   a. Define the slope of a line.
   b. Write a linear algebraic equation in slope-intercept form.
   c. Graph linear equations on a Cartesian coordinate system.

6. Recognize geometric formulas and use them to calculate perimeters, areas, and volumes.
   a. Select appropriate formulas for calculating the perimeter, area, or volume of a given figure.
   b. Calculate perimeter, area, or volume for a given figure.
   c. Determine the appropriate unit of measurement for the perimeter, area, or volume of the figure.
   d. Round answers appropriately.

7. Use algebraic and trigonometric algorithms to solve problems.
   a. Identify the hypotenuse of a right triangle.
   b. Identify opposite and adjacent sides of a reference angle of a right triangle.
   c. Identify the ratio of sides in a right triangle that define the sine, cosine, and tangent functions.
   d. Use the Pythagorean Theorem to calculate the length of a side in a right triangle.
   e. Use the laws of sine and cosine to solve oblique triangles.
   f. Use algebraic and trigonometric algorithms to solve applied problems.
   g. Use vector analysis to solve applied problems.

**Texts and Materials:**

      <u>Mathematics for the Trades: A Guided Approach</u>, Saunders, Carman, (10<sup>th</sup> Edition)
ISBN 13: 978-0-13-334777-7
Calculator with trigonometric functions

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**Minimum Course Requirements:**

Students shall demonstrate a minimum of 70% proficiency in the topics studied. Evaluation of proficiency shall be through at least three tests and a final examination, homework, quizzes and discussion boards are also a part of showing proficiency.

**Attendance:**

You are responsible for acquiring and learning all notes / concepts.  Any changes to assignments or the syllabus will be announced.  Mathematics requires a lot of practice, and the more time a student spends on it, the better (s)he will do.  Therefore, students are strongly encouraged to practice on the assignments throughout the course and seek assistance if it is needed.  **It is imperative that extended absences (more than two classes) be discussed with the instructor.**  Do not just stop coming to class; you must initiate the withdrawal process in the registration office.

**Minimum Computer Literacy Skill Requirements:**

Expectations of participants in this course include a general knowledge of computers, file management, word processing, and the Internet.

All students who are new to using Blackboard or are taking their first online class from NWCCD are expected to complete an [Orientation to Online Learning](http://www.sheridan.edu/academics/online-learning) prior to beginning this class. Students need to meet the minimum computer literacy expectations as well as the minimum technology requirements.

Go to the Distance Learning website for more information: http://www.sheridan.edu/academics/online-learning

**Minimum Technology Requirements:**

Access to the Internet and MyMathLab are required.

Please refer to NWCCD's portal for minimum technical requirements for online courses for additional information.

Course content will be delivered in multiple formats, including but not limited to: document, video, and audio media formats. Students must install the recommended plug-ins for each type of media.

**Technical Support Resources:**

**Instructor:** Contact your instructors first. They may need to adjust Blackboard course settings.

**Updates & Plug-ins:** Install all Web Browser **updates** and **plug-ins** on your computer

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**Personal Computer Problems:** Contact the technical support related to your hardware or software product to attain help.

**Search:** The **Student Resources** page on NWCCD's portal has many resources to explore.

### Student Information Network:
Student and Faculty are geared up to help you with questions on Blackboard, Email, WebAdvisor, Printing, downloading files, MAP Works, wireless and any other aspect of your college experience.

### Student Info Net Hours
Mon & Wed --- 8:00AM – 5:00PM
Tues & Thurs - 8:00AM – 7:00PM
Friday --------- 9:00AM – 5:00PM

### Technical Problems:
E-mail: mailto:helpdesk@sheridan.edu
**Submit Helpdesk Ticket**

| | |
|---|---|
| Sheridan | 307.674.3300 |
| Gillette | 307.686.0254 ext. 2600 |
| Toll free | 1.800.913.9139 ext. 2600 |

### Help Desk Hours

Mon - Thurs -- 8:00AM – 9:00PM
Friday --------- 8:00AM – 5:00PM

Summer:
Mon-Thurs-7:30AM–5:30PM

## Considerations:

**Academic Honesty:** It is expected that work turned in by a student is the work of that student. Cheating on a test or homework will result in a grade of 0 for that work. A second instance may result in the student receiving a grade of "F" for the course. Academic dishonesty, including deliberate plagiarism, submitting the work of others as your own, creating fake data, or any other form of intentional misrepresentation for the purpose of receiving a higher evaluation than is merited or to cause another student to receive a lower evaluation than merited, will not be tolerated. If you are caught engaging in such behavior, disciplinary action may be taken as deemed appropriate by the administration.

**Calculators:** We will be using scientific calculators in class. To facilitate completion of homework assignments and mastery of the topics covered it is recommended that students provide their own calculators. Most basic scientific calculators can be purchased for $10-15.

**Code of Conduct:** Treat your instructor and fellow students with respect. The online forums are meant to be a place that you can ask questions and receive help, please be courteous when asking or giving assistance.

## Specific Accommodations:

Any student who requires accommodations because of a physical, learning, psychiatric, vision, or hearing disability must contact the instructor and the Disabilities Services Office at the beginning of the course. After you have documented your disability with Disabilities Services, please arrange an appointment, or see me during office hours to discuss your accommodations. Students with disabilities who believe they may need accommodations in this class must contact the disabilities services coordinator on their campus as soon as possible to request such accommodations.

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**Words of Advice:**

- Do your best *not to fall behind*. Do not hesitate to come see me, e-mail me, make an appointment, or call me if you have any questions. ***Please bug me!***
- **Make a set time each day for "class" and do not skip class.**
- Homework, and blackboard discussions are worth an entire letter grade and I will <u>not</u> be dropping any. Try to **turn in every assignment**. There is no extra credit.
- Please check blackboard **frequently** as I will update it regularly.  If you use Blackboard email, be sure that your account is set up correctly. When I reply the reply is emailed to your Sheridan live email account unless you have changed the address.

**Grading:**

Components of the final course grade will be tests, quizzes and homework/discussion boards.  Grades will be determined using the percentage of total points earned as follows:

**A: 90 – 100;   B: 80 – 89;   C: 70 – 79;   D: 60 – 69;   F < 60.**

Quizzes, tests, and a comprehensive final exam will constitute the major component of the course grade.  Quizzes will be worth 35% of your grade.  Tests will be worth 55% of your grade.  The comprehensive final exam will be weighted as two test grades, and count in the test component of your grade.  Homework assignments and discussion boards will count as 10% of your final grade.

**Homework 10%:** Homework will be assigned for each section.  It is expected that you work on the assignments throughout the chapter.  Do not put it off until the end of the chapter.  **Late work will not be accepted**.  The discussion board points will also count in this category.  On occasion we may complete other activities that will count in the homework component of your grade.

**Quizzes 35%:** Quizzes will be given after each section and will consist of concepts learned in that lesson and practiced in the homework.  You will get two opportunities for each quiz.

**Tests 55%:**  There will be a test at the completion of each chapter and a comprehensive final.  The quizzes are meant to help you prepare for the content on the tests.  I recommend using these tests as a study guide for the final.

**Testing Procedure:**

Chapter tests will need to be proctored, and will be completed through MyMathLab, same as your homework and quizzes.  Please send me your proctor's contact information by the end of the first week of class.

Make-up tests will be allowed without penalty <u>ONLY</u> if arrangements have been made with the instructor *before* the test is administered to the class.  In any other instances, make-up tests will be given at the instructor's discretion and a late work penalty will be deducted from the score.  **The deadline for late exams is one week past the exam date or the last day of regularly scheduled classes, whichever comes first.**

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**Turn-in Procedure:**

- All assignments will be completed using Pearson's MyMathLab online.
- If you complete 93% or more of a Homework Assignment, you will receive full credit on the assignment. This accounts for the multiple parts to many questions.
- Again, no late work is accepted. If you are unable to submit homework or participate in the discussion board (either intentionally or unintentionally), you are losing valuable points.

**Course Outline:** This is a <u>tentative</u> schedule for the semester. It may be necessary to adjust the schedule to meet the particular needs of this class. It is the responsibility of each student to keep abreast of any changes.

| Date | Lesson | Quiz | Test |
|------|--------|------|------|
| | 1.1 – 1.5 | | |
| | 2.1 – 2.4 | Ch 1 Quiz | |
| | 3.1 – 3.3 | Ch 2 Quiz | |
| | 4.1 – 4.2 | Ch 3 Quiz | |
| | 4.3 – 4.5 | Quiz 4.1 – 4.2 | |
| | Review for Test 1 – 4 | Quiz 4.3 – 4.5 | |
| | Test Chapters 1 – 4 | | Test Ch. 1 – 4 |
| | 6.1 – 6.4 | Quiz 5.3 – 5.4 | |
| | 7.1 – 7.2 | Quiz 6.1 – 6.4 | |
| | 7.3 – 7.5 | Quiz 7.1 – 7.2 | |
| | Review for Test 6 & 7 | Quiz 7.3 – 7.5 | |
| | Test Chapters 5 &7 | | Test Ch. 6 & 7 |
| | 5.1 – 5.2 | | |
| | 8.1 – 8.2 | | |
| | 8.3 – 8.4 | Quiz 8.1 – 8.2 | |
| | 9.1 – 9.2 | Quiz 8.3 – 8.4 | |
| | 9.3 – 9.4 | Quiz 9.1 – 9.2 | |
| | Review for Test 5, 8 & 9 | Quiz 9.3 – 9.4 | |
| | Test Chapters 5, 8 & 9 | | Test Ch. 5, 8 & 9 |
| | Right Triangles Trigonometry | | |
| | Right Triangle Trigonometry | Trig Ratios Quiz | |
| | Right Triangle Trigonometry | Spec Rt Tri Quiz | |
| | 12.1-12.2 | Trig App Quiz | |
| | Review for Test 10 & 12 | Quiz 12.1 – 12.2 | |
| | Test Chapters 10 & 12 | | Test Trig & 12 |
| | Review for final | | |
| | Final Exam (Weighted Twice) | | Final Exam |