## General Education Math Quantitative Reasoning

**Tuesdays 6:00 pm – 9:45 pm**

<table>
<thead>
<tr>
<th>Truman College</th>
<th>DePaul University Loop Campus 25 E Jackson</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Title</strong></td>
<td>Math 118 DEP</td>
</tr>
<tr>
<td><strong>Credit Hours/Competencies</strong></td>
<td>4 Credit Hours</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td>Steven Ripes</td>
</tr>
<tr>
<td><strong>e-mail</strong></td>
<td><a href="mailto:sripes@ccc.edu">sripes@ccc.edu</a></td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td>773 656 9138</td>
</tr>
<tr>
<td><strong>Office Hours</strong></td>
<td>Saturday 7:30 am – 9:00 am, Tuesday 5:30 pm – 6:00 pm, 9:45 pm – 10:30 pm Also by appointment</td>
</tr>
<tr>
<td><strong>Office</strong></td>
<td>Truman College Room 3936</td>
</tr>
<tr>
<td><strong>Prerequisite</strong></td>
<td>Grade of C or better in Math 99 or COMPASS placement test score range within PRE-ALGEBRA (17-99) and ALGEBRA (43-99) or College ALGEBRA (1-50), or Consent of Department Chairperson</td>
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### Course Title
- **Truman College:** Math 118 DEP
- **DePaul School of New Learning:** Quantitative Reasoning

### Credit Hours/Competencies
- **Truman College:** 4 Credit Hours
- **DePaul School of New Learning:** L6, S1X

### Instructors
- **Truman College:** Steven Ripes
- **DePaul School of New Learning:** Pervez Rahman

### Contact Information
- **Truman College:**
  - **Phone:** 773 656 9138
  - **Office Hours:** Saturday 7:30 am – 9:00 am, Tuesday 5:30 pm – 6:00 pm, 9:45 pm – 10:30 pm Also by appointment
  - **Office:** Truman College Room 3936

- **DePaul School of New Learning:**
  - **Phone:** 773 907 4452
  - **Office:** LM 162

### Prerequisite
- **Truman College:** Grade of C or better in Math 99 or COMPASS placement test score range within PRE-ALGEBRA (17-99) and ALGEBRA (43-99) or College ALGEBRA (1-50), or Consent of Department Chairperson
- **DePaul School of New Learning:** None

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**Spring 2016**
Textbook

The Nature of Mathematics,
12th Edition,
by Karl J. Smith
Brooks/Cole 2012

ISBN-10: 0538737581

Calculator

The use of a scientific or graphing calculator is strongly recommended. Feel free to bring the calculator to class. The optimal calculator is TI-30X II S.

Tutoring

The Math Center is located in Room 1220 at Truman College. Students are encouraged to seek help and guidance during the course. In order to receive tutoring, students may need to sign up in advance.

Catalog Description

This course focuses on mathematical reasoning and the solving of real-life problems. Three topics are to be studied in depth. The specific topics, and which weeks they will be presented on, may be viewed in the class schedule. Mathematical modeling must be integrated in any combination of topics selected. Technology and writing assignments will be used throughout the course as appropriate. Applications involving problem-solving skills are emphasized throughout the course.

Course Description

Mathematics is everywhere. Sometimes it is obvious (money, graphs, statistics) while other times it is much more subtle (architecture, paintings, nature, music). Being able to see mathematics in all things is a gift and a great asset. A person with an understanding of mathematics has a major advantage over one who does not, whether it is in the workforce or in daily life. In this course, we will apply math to a variety of real-life situations. The goal is for you to see the value of math in your daily life (i.e. the practicality of math). We will study real math. Depending on what topics are chosen, this course will help you to: understand debt, buy a house, conduct an effective statistical study, etc. This, hopefully, will make this course real for you. After this course, you may want to do more math. At the very least, you will be able to live with and see the necessity of math in your daily life.
Course Objectives
- Interpret and draw inferences from mathematical models such as formulas, graphs, tables, and schematics.
- Represent mathematical information symbolically, visually, numerically, and verbally.
- Use arithmetic, algebraic, geometric, and/or statistical methods to solve problems.

We will examine these questions throughout the semester
- How can math be used in my daily life?
- Is it socially acceptable to say that you are not good at math?
- Was math created or discovered?
- Can every situation be explained mathematically?
- How does math relate to other fields and nature?
Math 118 DEP  General Education Math / Quantitative Reasoning  Spring 2016

Course Topics
- Geometry
- Measurement
- Financial Management
- Statistics
- Counting Techniques
- Probability

Student Learning Outcomes
As a result of your hard work, you will be able to:
- Formulate a mathematical model from various sources of information.
- Select and apply appropriate models for solving real-world problems.

Geometry/Measurement (Chapters 7 and 9)
- Apply formulas (i.e., perimeter, circumference, and area) for 2-dimensional figures to a contextual situation.
- Apply formulas (i.e., volume, and surface area) for 3-dimensional figures to a contextual situation.
- Apply the Pythagorean Theorem to a contextual situation.
- Apply the concepts of congruence and similarity to a contextual situation.

Financial Management (Chapter 11)
- Convert between percents, fractions and decimals
- Examine ways in which percents can be abused in contextual situations
- Apply percents to contextual situations (i.e. tax, interest, etc...)
- Compare and apply types of interest in contextual situations

Statistics (Chapter 14)
- Construct and interpret frequency distribution tables and graphs.
- Determine and interpret the measures of descriptive statistics (i.e., central tendency, dispersion, and position) in contextual situations.
- Apply the properties of the normal distribution to contextual situations.

Counting Techniques and Probability (Chapter 13)
- Apply the addition and multiplication rules of counting to a contextual situation.
- Apply permutations and combinations to a contextual situation.
- Determine and count the outcomes in an experiment.
- Apply the addition and multiplication rules of probability.
- Formulate and apply discrete probability distributions to contextual situations.
- Identify mutually-exclusive and independent events to contextual situations.
Method of Instruction
Each class will begin with a review of the previous week’s homework. New material will be presented in lecture form, and examples will be provided to show students a systematic method of solving problems. Students are strongly encouraged to participate in the lecture by asking and answering questions. Once all new material has been presented, students will work together in groups to solve problems based on the lecture. After, homework will be assigned based on the evening’s lesson as well as a take-home quiz. All assignments will be due the following Tuesday.

Homework
Homework will be assigned each week and will be collected the following week. Homework should be done in PENCIL, and should be neat and clear. Any problem that is illegible will be marked as incorrect. Use both sides of the paper for all assignments. Your heading on all assignments should be written in the top right-hand corner of the page and must look as follows:

Your Name
Date
Math 118 or Quantitative Reasoning
Page Numbers Assigned
Problem Numbers Assigned

LATE HOMEWORK WILL NOT BE ACCEPTED AND WILL BE GRADED AS A ZERO.

Grading and Evaluation
Over the course of the quarter there will be 12 quizzes and a comprehensive final. The problems on all the quizzes will be similar to homework problems and problems worked out in class. Of the 12 quizzes, the two with the lowest scores will be dropped. However, a missed quiz without prior approval will count as a zero and will not be dropped. The following percentages and grading scale will be used to determine the final grade:

<table>
<thead>
<tr>
<th>Attendance and Class Participation</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>50%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
</table>

90 to 100 A  
80 up to 90 B  
65 up to 80 C  
55 up to 65 D
**Attendance**
Your prompt and regular attendance to class is essential to your success in this course. This course covers a lot of material and must move quickly. Therefore, it is necessary that you attend all lectures and follow instructions closely so that you do not fall behind. If an absence is unavoidable, you are responsible for getting the notes and the homework assignment from one of your classmates. Frequent absences may result in either an F grade, or withdrawal from the course.

**Cheating**
Any student found cheating on any homework, project, or test will receive a zero for that assignment, and may be subject to serious disciplinary action by the college.

**No Show Withdrawal (NSW)**
Registered students who did not attend the first class session will be withdrawn from the class by the instructor and issued an NSW.

**Administrative Withdraw (ADW)**
Students will be administratively withdrawn at midterm if at least two of the following apply:
1. Less than 70% of assignments up to the midterm have been completed.
2. Less than 70% of quizzes and tests up to the midterm have been attempted.
3. Less than 50% of class sessions up to the midterm have been attended.
4. Student missed three consecutive classes.

**Withdrawal from the Course**
Not attending classes does not constitute withdrawal from the course. After midterm, instructors can no longer drop students from the course. If students stop attending classes after the midterm, the instructor can only assign a grade of F. **If you no longer attend classes, it is essential that you stop by the registrar’s office and officially withdraw from the course to protect your GPA.** Before withdrawing from the course, students are encouraged to consult the instructor.
Please Note
- Cell phones should be silent during class. If you are expecting a call, step out and take the call.
- Food and drink is allowed in class assuming it’s not too messy or noisy. We share this space with others. Let’s respect it.
- The free exchange of ideas is encouraged. We strive toward a great learning environment.
- At all times, please treat the instructor, other students, and their opinions with respect.
- Arrive to office hours prepared. If you have missed a class, be sure to obtain and read all class related material. Have a list of specific questions.
- Please retain all class-related material until you receive your final grade for the course.
- Students that register late are responsible for all course work they missed due to their absence.

Top Ten Suggestions for Success in Class
1. Have fun.
2. Think.
3. Write well.
4. Read carefully.
5. Work together.
6. Do not become overconfident.
7. Do not fall behind.
8. Ask questions.
9. Do not be late.
10. Attend class

Constantly question what you are learning. Utilize your professors, tutors, and your classmates. Also, keep practicing. Math is not a spectator sport. It is an art that becomes more fun, exciting and rewarding with every new understanding.
### Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Course</th>
<th>Date</th>
<th>Quiz</th>
<th>Week Lecture</th>
<th>Chapter Sections</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Truman</td>
<td>1/26</td>
<td>Quiz 1</td>
<td>Week 1 lecture</td>
<td>7</td>
<td>Geometry, Polygons, Angles, Triangles</td>
</tr>
<tr>
<td>2</td>
<td>Truman</td>
<td>2/2</td>
<td>Quiz 2</td>
<td>Week 2 lecture</td>
<td>7</td>
<td>Similar Triangles, Right-Triangle Trigonometry, Art, Non-Euclidean Geometries</td>
</tr>
<tr>
<td>3</td>
<td>DePaul</td>
<td>2/9</td>
<td>Quiz 3</td>
<td>Week 3 lecture</td>
<td>9</td>
<td>Perimeter, Area, Surface Area, Volume, and Capacity</td>
</tr>
<tr>
<td>4</td>
<td>DePaul</td>
<td>2/16</td>
<td>Quiz 4</td>
<td>Week 4 lecture</td>
<td>9</td>
<td>More Measurements, Conversions</td>
</tr>
<tr>
<td>5</td>
<td>DePaul</td>
<td>2/23</td>
<td>Quiz 5</td>
<td>Week 5 lecture</td>
<td>11</td>
<td>Interest, Installment Buying, Sequences</td>
</tr>
<tr>
<td>6</td>
<td>Truman</td>
<td>3/1</td>
<td>Quiz 6</td>
<td>Week 6 lecture</td>
<td>11</td>
<td>Series, Annuities</td>
</tr>
<tr>
<td>7</td>
<td>DePaul</td>
<td>3/8</td>
<td>Quiz 7</td>
<td>Week 7 lecture</td>
<td>11</td>
<td>Amortization</td>
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<tr>
<td>8</td>
<td>DePaul</td>
<td>3/15</td>
<td>Quiz 8</td>
<td>Week 8 lecture</td>
<td>13</td>
<td>Introduction to Probability, Mathematical Expectations, Probability Models</td>
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<tr>
<td>9</td>
<td>DePaul</td>
<td>3/29</td>
<td>Quiz 9</td>
<td>Week 9 lecture</td>
<td>13</td>
<td>Calculated Probabilities, The Binomial Distribution</td>
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<tr>
<td>10</td>
<td>DePaul</td>
<td>4/5</td>
<td>Quiz 10</td>
<td>Week 10 lecture</td>
<td>14</td>
<td>Frequency Distribution, Descriptive Statistics</td>
</tr>
<tr>
<td>11</td>
<td>DePaul</td>
<td>4/12</td>
<td>Quiz 11</td>
<td>Week 11 lecture</td>
<td>14</td>
<td>Normal Curve, Correlation, Regression</td>
</tr>
<tr>
<td>12</td>
<td>DePaul</td>
<td>4/19</td>
<td>Quiz 12</td>
<td>Week 12 lecture</td>
<td>14</td>
<td>Sampling</td>
</tr>
<tr>
<td>13</td>
<td>DePaul</td>
<td>4/26</td>
<td>Review of Chapters 7, 9, 11, 13, &amp; 14</td>
<td></td>
<td></td>
<td>All Topics</td>
</tr>
<tr>
<td>14</td>
<td>DePaul</td>
<td>5/3</td>
<td>Cumulative Final Exam</td>
<td></td>
<td>Final Exam</td>
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Schedule is flexible and may vary.

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