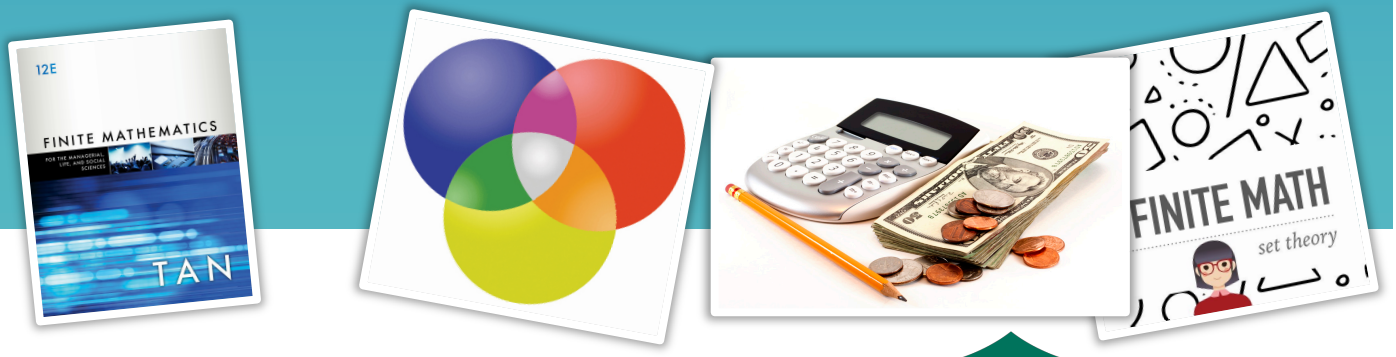
Math 117, College Mathematics

Summer 2020



Instructor: Dr. Jennifer Fleury

Class time:
Hyflex, Mondays 7:15-8:45PM

Office: Davis 2

Office hours: Available by appointment

Nichols College

Learn. Lead. Succeed.

Course Description with prerequisites and credits:

- Designed for students with three years of high school mathematics, which includes two years of high school algebra or its equivalent. Topics include real numbers, the number system, linear equations, inequalities, exponents, radicals, factoring, functions, slope, equations of straight lines, graphing, linear models, break-even analysis, market equilibrium, quadratics, applications of quadratic functions, graphing polynomials, and applications of functions to practical, “real life” situations.
- Prerequisite: Three years of high school mathematics.
- Credits: 3

Course Objectives / Outcomes / Assessments

(After each outcome, there is a code relating to Nichols College Learning Outcomes and Math Program Outcomes, which are listed in full at the end of this syllabus)

Course Objectives	Course Outcomes	Assessment of Outcome
To provide students with the necessary background to apply algebra to problems in fields of study such as business and the liberal arts.	NC – II; MATH – 1,5	Tests, Homework, Final Exam
To demonstrate the application of algebra to real world problems.	NC – II; Math – 5	Tests, Homework, Final Exam
To extend computer literacy by using online mathematical tools.	NC – II; Math – 3	Homework, Excel Project
To enhance critical thinking and problem solving skills.	NC II; Math – 1, 3, 5	Exams, Homework, Final Exam

Nichols College Educational Goals & Outcomes

I. **Communication**
Effectively express and accurately comprehend concepts and facts using a range of appropriate and current communication methods.

II. Critical Thinking & Quantitative Analysis
Utilize qualitative and quantitative problem-solving skills to analyze and interpret information.

III. Ethics & Personal Accountability
Recognize and assess questions of right and wrong and demonstrate a willingness to act responsibly in personal and professional life.

IV. Civic & Social Engagement
Articulate an understanding and appreciation of cultural and human differences, acknowledging the interconnectedness of a global society and one's social and civic responsibility to the community, the nation and the world.

V. Leadership & Teamwork
Work effectively and collaboratively in a group, assume leadership when appropriate, and support leadership in others.

Mathematics Program Outcomes

1. Students will demonstrate a working knowledge of selected topics from pure mathematics, applied mathematics, financial mathematics, statistics and probability.
2. Students will develop a logical foundation in order to construct mathematical proofs.
3. Students will demonstrate understanding of the mathematical basis of common algorithms, and the ability to calculate accurately and efficiently.
4. Students will communicate mathematical ideas clearly. They will use correct mathematical terminology and proper mathematical notation.
5. Students will demonstrate their ability to apply mathematics in other fields at an appropriate level and demonstrate their ability to apply knowledge acquired from their major to real world models.

Course Grading

Homework (30%)

All homework will be completed through Webassign.

Tests (40%)

Four tests will be assigned during the course.

Final Exam (15%)

A comprehensive final exam will be given during the final week of the course.

Excel Project (15%)

Students will complete an Excel Assignment that relates to topics in the course.

Letter Grades:

A 100-93%	A- 92.99-90%	
B+ 89.99-87%	B 86.99-83%	B- 82.99-80%
C+ 79.99-77%	C 76.99-73%	C- 72.99-70%
D+ 69.99-67%	D 66.99-63%	D- 62.99-60%
F 59.99% & below		

Tentative Topic List

Ch. 1 Straight Lines and Linear Functions

1.1 The Cartesian Coordinate System
1.2 Straight Lines
1.3 Linear Functions and Mathematical Models 1.4 Intersection of Straight Lines

Ch. 5 Mathematics of Finance

5.1 Compound Interest
5.2 Annuities
5.3 Amortization and Sinking Funds

Ch. 6 Sets and Counting

6.1 Sets and Set Operations
6.2 The Number of Elements in a Finite Set 6.3 The Multiplication Principle
6.4 Permutations and Combinations

Ch. 7 Counting and Probability

7.1 Experiments, Sample Spaces and Events
7.2 Definition of Probability
7.3 Rules of Probability
7.4 Use of Counting Techniques in Probability
7.5 Conditional Probability and Independent Events 7.6 Bayes' Theorem

Ch. 8 Probability Distributions and Statistics

8.1 Distributions of Random Variables 8.2 Expected Value

Week	Topic	Important Info
5/11	Chapter 1, Straight Lines and Linear Functions	
5/18	Chapter 5, Mathematics of Finance	Test #1 due before class on 5/25
5/25	Chapter 5, Mathematics of Finance (Memorial Day Holiday, class will be prerecorded)	Excel Project due before class on 6/1
6/1	Chapter 6, Sets and Counting	Test #2 due before class on 6/8
6/8	Chapter 7, Counting and Probability	Test #3 due before class on 6/15
6/15	Chapter 8, Probability and Statistics	Test #4 due before class on 6/22
6/22	Review for Final Exam	Final Exam due 6/26

***** THIS SYLLABUS IS SUBJECT TO CHANGE *****

Academic Honesty Policy:
Summary: Don't Cheat, you'll regret it!

Enrollment in an academic course at Nichols College obligates the student to follow the College's Academic Honesty Policy, the violation of which can lead to serious disciplinary action. The Policy may be stated simply as follows:

The College expects all academic work submitted by a student (papers, exams, projects, computer programs, etc.) to be the student's own. Plagiarism (as defined below), cheating during examinations, and assisting others in the acts of plagiarism or cheating, are expressly prohibited by the Policy. In sum, a student's academic performance must be an honest representation of the student's ability.

The following are detailed descriptions of some possible Academic Honesty Policy violations:

1. Plagiarism is defined as the unaccredited use of words or ideas, which are the result of other persons' creative efforts.

   Examples of plagiarism include the following:
   1) Copying of other persons' work during examinations, with or without their permission.
   2) Duplication of other persons' homework, themes, essays, reports, research papers, computer code, spreadsheets, graphics, etc. with or without their permission;
   3) Use of specific passages or detailed use of specific ideas as set forth in books, journals, magazines, etc. without proper citation (footnotes, bibliography);
   4) Use of materials provided by term paper services.

2. Complicity in plagiarism by condoning copying of one's own work including homework, themes, essays, reports, research papers, computer code, spreadsheets, graphics, etc.

3. Use of notes or "crib sheets" during examinations (unless the instructor specifically authorizes use of such materials or an "open book" examination format)

   Examples of penalties imposed for violation of the Honesty Policy include failing grades, forced withdrawal from courses or suspension from the College. The instructor normally resolves cases but in some instances a student may be subjected to a formal hearing conducted by a committee of the faculty. The severity of the penalties suggests that it is most important for all Nichols students to fully understand the specific kinds of behavior that violate the Policy.

This and other important policies are available in the Undergraduate Catalog:https://www.nichols.edu/files/Nichols-College-Undergraduate-Catalog-2019-2020.pdf

Absence Policy –pgs. 41-42,
Classroom Conduct Policy –pg. 43
Credit Hour Policy –pg. 46,
Academic Honesty Policy –pgs. 47-99
Learning Services (Learning Accommodation & Support Services) pg. 34