MT 085 Basic Algebra

***DONNELLY COLLEGE***

***Lansing Correctional Facility***

Term

Day/Time

4 credit hours

**INSTRUCTOR INFORMATION:**

Name:

Office:

Office hours:

**COURSE DESCRIPTION:**

This is a beginning course in algebra, designed to help students acquire a solid foundation in the basic skills of algebra. Topics include fundamentals of algebra, solutions of linear equations and inequalities, solving application problems, graphs of linear equations, systems of equations, operations with polynomials, factoring, rational expressions, radicals, and solving quadratic equations. (This is a preparatory course and cannot be used to fulfill graduation requirements.)

.

**PREREQUISITES:**

C or better in EN 080, and; C or better in MT 080 Arithmetic or appropriate placement score, or permission of the mathematics instructor

**REQUIRED TEXTBOOK & SUPPLIES:**

* Introductory Algebra 9th edition. Lial, Hornsby, and McGinnis. Pearson 2010. ISBN (0-321-55713-1)
* Calculators

**PHILOSOPHY OF GENERAL EDUCATION:**

Donnelly College has consistently maintained a strong commitment to the liberal arts and sciences as a foundation for a complete education. The faculty strongly believes that the liberal arts and sciences provide the context through which students can engage with the larger questions about students’ place in the world and their pursuit of truth. Therefore, the College’s general education requirements are designed to ensure that liberal arts and sciences graduates develop a breadth of content knowledge and the skills and abilities which will enable them to become educated participants in a diverse global community.

**DONNELLY COLLEGE LEARNING OUTCOMES:**

1. **Communication Skills:** Students will communicate effectively in writing and speaking.
2. **Technology and Information Literacy Skills:** Students will demonstrate proficiency in information literacy skills.
3. **Symbolic Problem Solving:** Students will demonstrate competency in qualitative and quantitative problem solving.
4. **Analytical Thinking:** Students will employ reflective thinking to evaluate diverse ideas in the search for truth.
5. **Personal and Interpersonal Skills:** Students will develop an understanding across cultural differences locally, nationally, and internationally.
6. **Academic Inquiry:** Students will engage independently and effectively in lifelong learning.
7. **Values:** Students will demonstrate moral and ethical behavior in keeping with our Catholic identity.

**LIBERAL ARTS AND SCIENCES PROGRAM LEARNING OUTCOMES:**

In addition to the general education learning outcomes – communication skills, technology and information literacy skills, symbolic problem solving, analytical thinking, personal and interpersonal skills, academic inquiry, and values – upon successful completion of the Associate of Arts in Liberal Arts degree, the graduate should be able to demonstrate:

1. Proficiency and creativity in written and verbal communication.

2. Effective use of current technology in support of academic work.

3. Proficient use of qualitative and quantitative methods in problem solving.

4. Critical and Analytic thinking across a range of disciplines.

5. A commitment to ethics and integrity in academic and professional relationships, within the community and the environment.

6a. The ability to conduct research using sources, strategies, and approaches across disciplines. (AA)

6b. Use of the scientific method. (AS)

**MT 085 BASIC ALGEBRA STUDENT LEARNING OUTCOMES:**

Upon completion of MT 085 the student will have the ability to:

1. Simplify and/or evaluate expressions.

2. Solve equations and inequalities.

3. Solve application problems.

4. Graph linear equations.

5. Factor algebraic expressions.

|  |  |  |  |
| --- | --- | --- | --- |
| **Donnelly College**  **Learning Outcomes** | **Program Learning Outcomes1** | **Student Learning Outcomes2** | **Application and Assessment3** |
| Students will communicate effectively in writing and speaking. | 1. Students will demonstrate proficiency and creativity in written and verbal communication. | 3. Students will have the ability to solve application problems. | 3. Class average grade of 70% or more on problems 22 – 25 on the Final Exam. |
| Students will demonstrate proficiency in information literacy skills. | 2. Students will demonstrate effective use of current technology in support of academic work. |  |  |
| Students will demonstrate competency in qualitative and quantitative problem solving. | 3. Students will demonstrate proficient use of qualitative and quantitative methods in problem solving. | 1. Students will have the ability to simplify and/or evaluate expressions.  2. Students will have the ability to solve equations and inequalities.  4. Students will have the ability to graph linear equations.  5. Students will have the ability to factor algebraic expressions. | 1. Class average grade of 70% or more on problems 1 – 7 and 10 – 12 on the Final Exam.  2. Class average grade of 70% or more on problems 13 and 17 – 21 on the Final Exam.  4. Class average grade of 70% or more on problems 14 – 16 on the Final Exam.  5. Class average grade of 70% or more on problems 8 – 11 on the Final Exam. |
| Students will employ reflective thinking to evaluate diverse ideas in the search for truth. | 4. Students will demonstrate critical and analytic thinking across a range of disciplines. |  |  |
| Students will develop an understanding across cultural differences locally, nationally, and internationally. | 5. Students will demonstrate a commitment to ethics and integrity in academic and professional relationships, within the community and the environment. |  |  |
| Students will engage independently and effectively in lifelong learning. | 6b. Use of the scientific method. |  |  |
| Students will demonstrate moral and ethical behavior in keeping with our Catholic identity. |  |  |  |

**COURSE REQUIREMENTS**

**CLASS PARTICIPATION: (5% of course grade)**

Students should come to class prepared, by **reading the sections beforehand**, to participate in the class sessions. Students are expected to listen attentively, engage in discussions, answer questions, and ask for clarifications. Points will be deducted for students who are unprepared for class or who don’t follow instructions. Each session will include discussions or activities that will give the students “hands on” practice in applying key algebraic concepts. Some of these activities will be collected at the end of the session and graded. In addition, short quizzes and/or exercises may be administered to assess student preparedness.

The schedule at the end of the syllabus lists the sections in the book that will be covered on each day and you are expected to have read those sections in the book by that day and come to class prepared to begin working exercises related to those sections once the lecture portion of the class is completed. The Participation grade is worth 50 points.

**HOMEWORK: (25% of course grade)**

A list of homework exercises will be provided for each section that is required. This will be a minimum assignment. I encourage you to do as many exercises as necessary to master the topics because the exercises will be similar to items found on the exams. Each homework unit is worth the student’s percentage of 50 points. (For instance, if a student earns 90% for that unit, then they will be awarded 45 points.) Homework must be submitted on the due date to receive full credit. If approved, a 10% penalty will be assessed for homework submitted after the due date and before the next class session after the due date. Homework will not be accepted after the first class session in which it was due.

**EXAMS: (50% of course grade)**

There will be four regular exams worth 125 points each. You will be given a study guide prior to each exam. One exam may be retaken at the end of the semester. **Exams may not be rescheduled unless approved in advance of the exam date.**

**FINAL: (20% of course grade)**

The final will be worth 200 points and is comprehensive. The final is worth 20% of the final grade and therefore impacts the course grade significantly. Changes in exam times are not allowed except in emergencies. Students who have earned 95% or higher prior to the final will be exempt from the final.

**GRADING:** The final grade will be assessed according to points obtained from the

following:

Participation 50 points 5%

Homework 250 points 25%

Exams 500 points 50%

Final 200 points 20%

Total 1000 points 100%

**GRADING SCALE:** Final grades will be assigned according to the following ranges:

900 – 1000 points 90% − 100% A

800 – 899 points 80% − 89% B

700 – 799 points 70% − 79% C

600 – 699 points 60% − 69% D

0 – 599 points 0% − 59% F

The following rubric will be used to evaluate individual problems on the final exam.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 pts | 1 pt | 2 pts | 3 pts | 4 pts |
| Answer is not correct and no work is shown or work shown is not labeled or not readable OR answer is correct but the directions were not followed | Work is shown (as appropriate), work is neat and readable, answer is not correct but work shown indicates the student had some idea of what was to be done | Work is shown (as appropriate), work is neat and readable, answer is not correct but work shown indicates minimal computational error(s) | Work is shown (as appropriate), work is neat and readable, answer is correct but has not been simplified as much as possible or answer differs by the sign | Work is shown (as appropriate), work is neat and readable, answer is correct and has been simplified as much as possible |

**ACADEMIC INTEGRITY:** “…Academic integrity is to be maintained at all times to insure genuine educational growth. Cheating and plagiarism in all forms, therefore, will be subject to disciplinary action. Serious infractions will be reviewed by an ad hoc committee, appointed by the appropriate dean. Appropriate sanctions will be imposed.”

**PLAGIARISM:** Plagiarism – the appropriation or imitation of the language or ideas of another person and presenting them as one’s original work – sometimes occurs through carelessness or ignorance. Students who are uncertain about proper documentation of sources should consult their instructors.

**ACCOMMODATIONS:** In compliance with the Americans with Disabilities Act, Donnelly College will make every attempt to provide equal access for persons with disabilities. Students in need of accommodations must request them in writing from the Vice President of Academic Affairs.

**CIVILITY & DECORUM:** As noted in its Code of Conduct, Donnelly College is committed to maintaining an overall atmosphere of civility and respect. Civility and decorum both inside and outside the classroom are fundamental foundations of the values at Donnelly College. Classroom discussions and interactions outside the classroom will at all times be focused on the learning process and should always be respectful of both students and faculty. In open discussions of ideas and issues, disagreements should focus on ideas and facts. Name calling and assaults (either in person or on-line) will not be tolerated. Should any problems occur, the instructor should be notified immediately. Those who do not comply with civility and decorum requirements may be subject to a grade reduction and/or other sanctions up to and including dismissal from Donnelly College.

**ATTENDANCE POLICY:** Class attendance is encouraged. Any student who misses four or more class sessions may be withdrawn from the class at the discretion of the instructor.

**WITHDRAWAL FROM COURSES OR FROM SCHOOL:** It is the responsibility of the student to withdraw from class. If a student decides to withdraw from a class, ideally, they should see an advisor and the financial aid staff before taking the withdrawal form to the Registrar's office for processing.  However, any verifiable contact (e-mail, fax, phone, mail, etc.) with authorized college personnel expressing the student's intent to withdraw from a class will be honored.

If students withdraw before they have earned their financial aid, they will owe Donnelly College a debt for the unearned portion of the financial aid as well as for any unpaid balances (subject to the College's refund policy). Not attending class is not a withdrawal from class.

**Donnelly College reserves the right to withdraw a student from class(es) if the student does not meet their financial obligations, including two missing or incomplete payments, or loss of financial aid.** Faculty may initiate an administrative withdrawal on the basis of non-attendance. In extreme circumstances (i.e. a disciplinary problem), the Vice President of Academic Affairs may initiate an administrative withdrawal. The student remains responsible for the tuition owed in this instance.

The deadlines for withdrawing from classes are as follows:

|  |  |
| --- | --- |
| 14 to 16 weeks | 3 weeks before the end of the class |
| 6 to 8 weeks | 7 weekdays before the end of class |
| 4 to 5 weeks | 4weekdays before the end of class |
| Less than 4 weeks | Withdrawals are not allowed |

Withdrawal deadline dates will be published in the academic calendar.

**MT 085 Basic Algebra**

**TENTATIVE COURSE CALENDAR:**

The schedule is subject to change based on the progress or needs of the class

|  |  |  |
| --- | --- | --- |
| ***Week*** | ***Dates*** | ***Topics*** |
| ***1*** | August 31 | Course Introduction  Section R.1 Fractions  Section R.2 Decimals and Percents |
|  | September 2 | Section 1.1 Exponents, Order of Operations, and Inequality  Section 1.2 Variables, Expressions, and Equations  Section 1.3 Real Numbers and the Number Line |
| ***2*** | September 7 | Section 1.4 Adding Real Numbers  Section 1.5 Subtracting Real Numbers  Section 1.6 Multiplying and Dividing Real Numbers |
|  | September 9 | Section 1.7 Properties of Real Numbers  Section 1.8 Simplifying Expressions  Review Chapters R and 1 |
| ***3*** | September 14 | **Exam I**  Section 2.1 Additional Property of Equality  Section 2.2 Multiplication Property of Equality |
|  | September 16 | Section 2.3 Solving Linear Equations  Section 2.4 Applications of Linear Equations |
| ***4*** | September 21 | Section 2.5 Formulas and Additional Applications from Geometry  Section 2.6 Ratio, Proportion, and Percent  Section 2.7 Solving Linear Inequalities |
|  | September 23 | Review Chapter 2  Section 3.1 Reading Graphs: Linear Equations in Two Variables  Section 3.2 Graphing a Linear Equation in Two Variables |
| ***5*** | September 28 | **Exam II**  Section 3.3 Slope of a Line  Section 3.4 Equations of Lines  Review Chapter 3 |
|  | September 30 | Section 5.1 Adding and Subtracting Polynomials |
| ***6*** | October 5 | **Exam III**  Section 5.2 Product and Power Rule of Exponents |
|  | October 7 | Section 5.3 Multiplying Polynomials  Section 5.4 Special Products |
| ***7*** | October 12 | Section 5.5 Integer Exponents and Quotient Rule  Section 5.8 Scientific Notation  Review Chapter 5 |
|  | October 14 | **Exam IV**  Section 6.1 The Greatest Common Factor  Section 6.2 Factoring Trinomials |
| ***8*** | October 19 | Section 6.3 Factoring Trinomials by Grouping  Section 6.4 Factoring Trinomial by FOIL  Section 6.5 Special Factoring Techniques  Review Final |
|  | October 21 | **Final** |